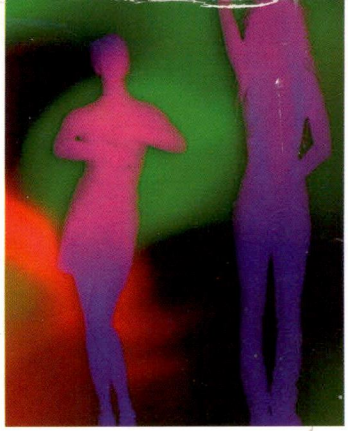
Digit



Spice Girls *vs* Batman

The Attik movies into top titles

INCORPORATING Publish

THE WORLD OF DIGITAL CREATIVITY

Creative juice

Windows NT battles the Mac

special report

Photoshop

Plug-in heaven

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Reviews

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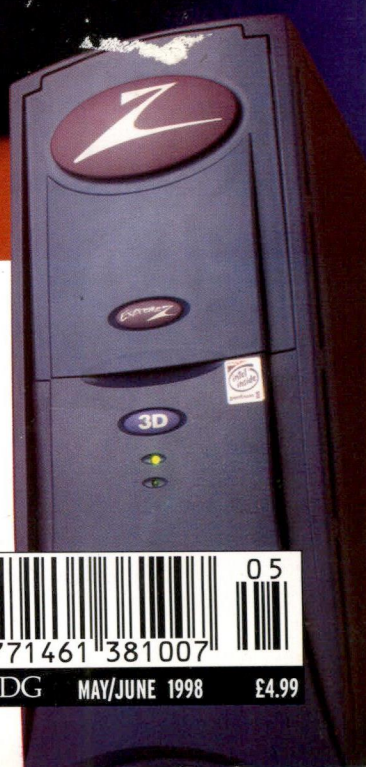

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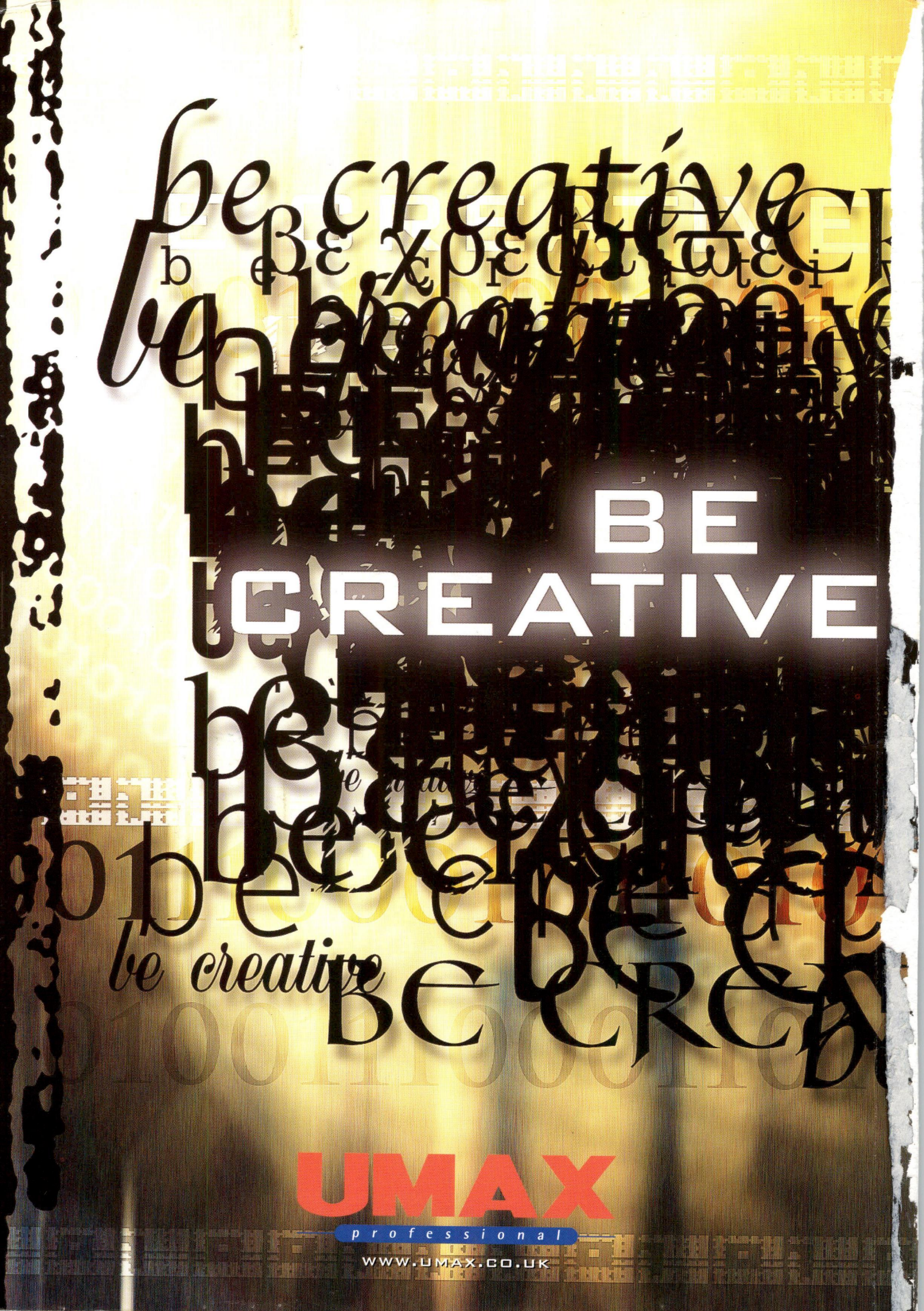
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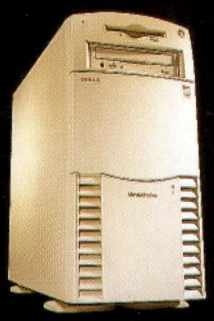

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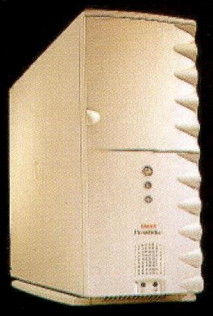

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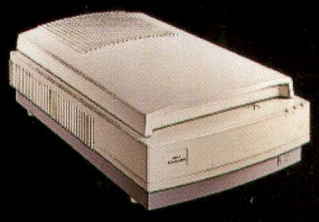

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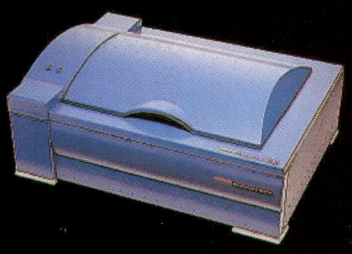

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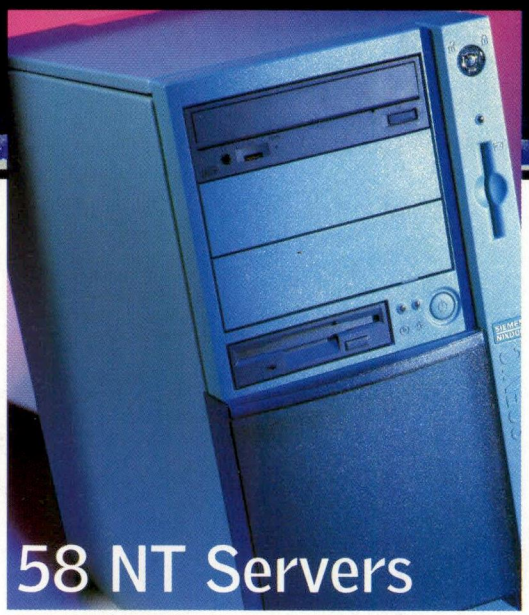

58 NT Servers

Microsoft's Windows NT is the most advanced operating system in terms of multi-tasking, multiprocessor support, and integrated networking capabilities. *Digit* examines the pros and cons of going NT.

100 Photoshop Plug-ins

We recommend the essential add-ons that make the world's greatest image editor even greater. Linked to try-outs on CDigit #1.

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The *Digit* guide to what to look out for when buying tomorrow's snappers.

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Ink-jets aren't just low-cost anymore, the "photo-quality" claims are pretty accurate. Isn't it time you had cheap 'n' easy access to a quality colour printer?

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The latest incarnation of Apple's multi-media standard marks a breakthrough in cross-platform computing.

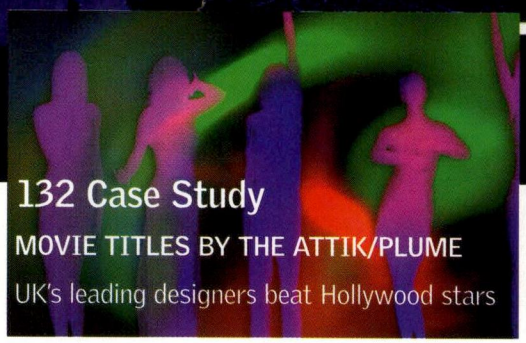
Digit-all

May/June 1998

Digit #1

Cover photograph courtesy of PhotoDisc/Contents illustration by Alan Mahon

REGULARS



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MOVIE TITLES BY THE ATTIK/PLUME

UK's leading designers beat Hollywood stars

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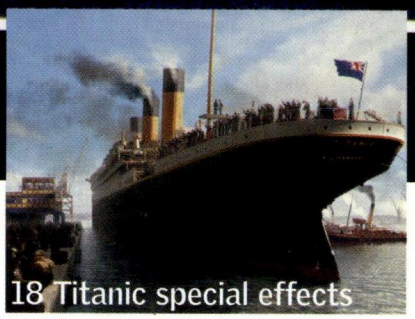

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WIN A TOP SCANNER!

Most of the demos on the PC side of the disc are executable set-up files. These will need to be run to install the demo on to your machine. Other executable files will extract the setup files - it's advisable to install these into a temporary folder on to your PC. And some of the files are in .ZIP format, again to conserve space on the CD. To extract these you'll need to use an Unzip utility - such as Winzip, which you can find in the Essentials folder.

Using the disc

All of the demos are in their own folder on the CD. Some of the Macintosh demos can be run from the CD, but to minimize space on the disc, most have been left as installers. These will install the demo on to the hard drive of your choosing.

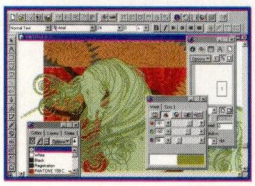
FreeHand 8.0

macromedia

Top dog this month is the awesome new version of Macromedia's leading vector-based illustration program. It's one that a lot of graphic professionals have been waiting for, and is a major revision.

Arguably the best 2D illustration program available today, the new version boasts a host of new features, including new creative tools such as the Graphic Hose, Lens Fills, and the awesome Transparency Lens that let you set the opacity of a layer, just like in Photoshop. There's also a fully customizable interface, and a whole new range of export options, including animation features and Flash compatibility.

This demo is fully featured but you will not be able to save or export files. The Power Mac version requires 16MB of RAM and System 7.1 or later. For Windows 95 you'll need 16MB of RAM and a Pentium processor, while the NT 4.0 version requires Service Pack 3 and 24MB of RAM.



Macromedia FreeHand 8.0

Bryce 3D

New from MetaCreations is the very latest version of Bryce. As well as rendering stunning images of landscapes, and a powerful 3D modelling tool, Bryce 3D adds animation capability, so you can create movie files of your imaginary worlds. Whether it's a flythrough over an alien landscape, or just the clouds rushing past, Bryce 3D is the only tool you need.

This demo is fully functional but the save is disabled. Also, fully rendered scenes are overlaid with the MetaCreations logo.

Also on the CD is an excerpt from Interplanetary Traveler from Third Planet, a stunning 60MB QuickTime video clip created using Bryce 3D. We've absolutely no idea if there's any plot to it all, but it's stunning to watch, and will fill you with inspiration to get rendering in Bryce 3D.

MetaCreations Bryce 3D

Free Images

Courtesy of PhotoDisc, we have five high-quality royalty-free images for you to enjoy and use. They are saved in high quality JPEG format on the CD, and each opens to a 300dpi image at about 3,000 pixels wide. If we had put these on the disc as TIFFs they would have taken up over 70MB.

The images are taken from the following PhotoDisc collections:

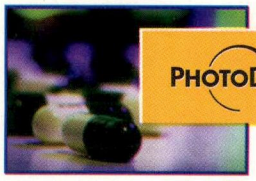
Supporting Cast: Men - From the Object Series, Volume 30

LifeStyles Today - Volume 45

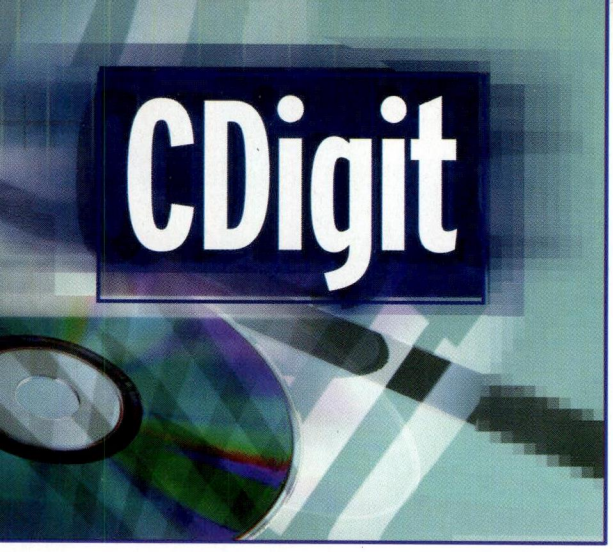
Still Life Today - From the Signature Series, Volume 22

Retro Americana 2 - Volume 47

Beauty & Health - Volume 46



One of five stunning high-resolution images courtesy of PhotoDisc



Cross-platform is back!

We've crammed the disc to the hilt to give both Mac and PC users the very best in the latest demos, features and showreels, shareware and resources. There's over 350MB for PC users and the same for Mac users. By sharing files between the two we've squeezed as much as is humanly possible on to the CD.

Photoshop Filter Extravaganza

We've gathered together every single filter mentioned in the Photoshop article. Many are full working versions, others are limited-function trial versions, or demos. They offer countless new image effects to Photoshop, extra file export capabilities, also time saving tools and productivity enhancements. Don't forget, many of them will work with other image editing programs, such as Corel PhotoPaint, Micrografx Picture Publisher, and other programs that support Photoshop plug-ins.

MAC: some filters when run will be installed to your Photoshop Plug-ins folder. Some saved as filters, can be installed by dragging them into your plug-ins folder.
PC: the filters installed on the CD as executable files, will start up an Install Wizard, which guides you through the installation process. Some extract the setup files, so it's a good idea to copy the .EXE file to a temporary folder on your hard disk before starting.

Kai's PowerTools in action

The Filters

Here's the full list of filters. They are all for the Mac and PC, unless otherwise stated:

- **Alien Skin**
  Eye Candy 3.01
  -eye popping effects
- **BoxTop Software**
  ColorSafe 1.5
  GIFmation 2.1
  ImageVice 1.1
  PhotoGIF
  ProJPEGv2.1 (Mac only)
  WebClipper (Mac only)\tab
  -a full set of image enhancement and optimization tools
- **Chromagraphics**
  EdgeWizard
  -add effects to image edges
- **DeepDevices**
  RetroScan (Mac only)
  -add old-style TV interference to images
- **Extensis**
  PhotoTools 2.0
  MaskPro 1.0
  -quality masking and image manipulation tools
- **Flaming Pear**
  BladePro 2.08 (Mac only)
  India Ink (Mac only)
  -strange name, strange company, strange filters
- **Furbo Filters**
  Furbo Designer series
  (Mac only)
  Furbo Webmaster series
  (Mac only)
  -some funky filters with specific users in mind
- **Greg's Factory Output**
  GFO 1
  GFO 2
  -a guy called Greg Schorno gets busy with the Filter Factory
- **MetaCreations**
  Kai's Power Tools 3.0
  -more fractal craziness from Kai Krause
- **SuckingFish**
  Sucking Fish Filters
  (Mac only)
  -some quick and easy effects from Naoto Arakawa
- **VividDetails**
  TestStrip 2.0.2 (Mac only)
  -produces different graduations of tone and contrast, just like a photo developers test strip.
- **Wacom PenTools**
  -great image effects that make use of a Wacom graphics tablet and its pressure sensitive pen. Require the atest versions of the Wacom drivers (included on the CD).

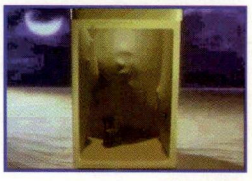
Plume Showreel

One of the hottest effects companies working today, Plume has created stunning sequences on adverts for clients like Coke, Ford First Direct and *The Sun*, TV idents and titles for MTV and BBC, and film title sequences including Batman and Seven Years in Tibet. Take a look at their dazzling showreel video (you'll need QuickTime installed to see it) and then install their exclusive Digit screensaver.

MAC: place the screensaver file into your Control Panels folder.

PC: run the Digit.exe file to install the screensaver into the correct place on your machine.

→



Plume Showreel

The disc Web pages.

On the CD you'll also find some HTML pages that give you an introduction to the contents of the disc, and links to the company's Web sites. We'll be developing this part of the disc in future issues to include embedded video clips, and for PC users the ability to install demos directly from the Web page. It's all designed to let you find out what the demos do, and let you get at them as quickly as possible.

Other Demos

Maxon Cinema 4D XL (Mac & PC)

The latest version of the 3D modelling, rendering and animation program, Cinema 4D XL adds more powerful modelling tools including NURBS, bones, quality rendering effects such as volumetric lighting, and enhanced animation tools.

Fully featured and save disabled demo, check out the files in the '4readers' folder, which contain scenes from Simon Danaher's tutorial. Rendered screens are overlaid with the Cinema4D logo.

Avid Elastic Reality (Mac & PC)

Avid's Elastic Reality is the best morphing program available for the PC and Mac, allowing images to twist and mutate into each other, and saved out as video clips. Easy to get to grips with but powerful and feature packed.

The demo is save disabled, and will put a redline across images or movie outputs.

Equilibrium DeBabelizer (PC)

Designed as an image translation tool, DeBabelizer is an essential graphics tool due to it's ability to optimise file size and create 'SuperPalettes' of common colours across images.This program is a fully functional evaluation version but it puts an Equilbrium logo across outputted images.

mFactory mTropilis 2.0 (Mac only)

Latest version of the respected multimedia authoring program, mTropolis. Fully object oriented, fast and powerful, mTropolis is popular in the multimedia production community. Save disabled demo.

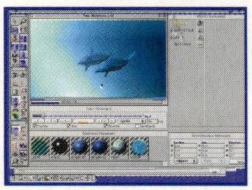
Live Picture 2.6.1 (Mac only)

Live Picture 2.6.1 is the latest version of the highly rated image editing program, combining photographic quality with real-time performance for unparalleled productivity and creativity.

Live Picture is the first professional application to support the FlashPix\'99 file format. UK Distribution by FITS (01442 239202).

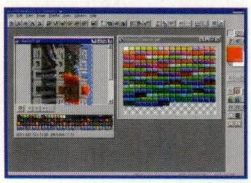
Koyosha Precision Preview XT (Mac only)

If you import images into your QuarkXPress layouts, then this Xtension is a tool you shouldn't be without. With the addition of Precision Preview XT (PPXT) to your QuarkXPress toolset, a powerful set of picture handling and production tools are at your fingertips.



Maxon
Cinema 4D XL

Avid
Elastic Reality



Equilibrium
DeBabelizer

Essentials

To ensure that you've got everything you need to enjoy the demos and showreels on the disc, we've gathered together a bespoke selection of software tools and utilities that every PC or Mac should have.

PC:

■ Nico Mak Winzip6.3
The latest version of the essential compression and decompression utility. This is a fully functioning evaluation version, so if you use it, make sure you buy the full version.

■ JASC PaintShopPro 4.1.4
The popular image editor for the PC, PSP is a great image viewer, and an essential tool for cropping or resizing images and changing file formats. This is shareware.

■ QuickTime 2.5
The latest publicly available version of Apple's video playback technology. This allows you to play QuickTime .MOV files, and includes a Movie Player utility. Windows 95/NT 4.0 users should install the 32-bit version (qt32inst.exe) while the 16-bit version (qt16.exe) is for Windows 3.11 users.

■ Adobe Acrobat Reader 3.01
Many of the manuals and documentation on this CD are in Acrobat .PDF format, so use the Acrobat reader to view the files, and make print outs if required.

■ FTP Voyager
The best FTP program that we've discovered, FTP Voyager allows you to upload and download files by dragging and dropping, using a Windows Explorer type interface. Essential for any file transferring. Again, this is shareware, so if you use it, register it.

Macintosh:

■ QuickTime 2.5
The latest publicly available version of Apple's video playback technology. This allows you to play QuickTime movies, and includes a Movie Player utility.

■ Adobe Acrobat Reader 3.01
Many of the manuals and documentation on this CD are in Acrobat .PDF format, so use the Acrobat reader to view the files, and make printouts if required. This also installs Adobe Type Manager 4.0.2.

■ Stuffit Expander 4.0.1
Aladdin's Stuffit Expander is the essential decompression utility for the Mac, allowing you to expand Stuffit files, and BinHexed archives.

■ DropStuff 4.01with Expander Enhancer
This is Aladdin drag'n'drop compression utility, allowing you to create Stuffit archives easily, and also adds features to Stuffit Expander such as additional file types such as .tar and .gzip.

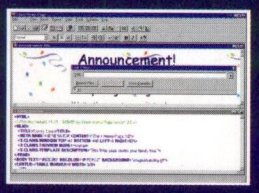
CDigit

This disc has been designed specifically for users of Power Macintosh machines or Windows 95/NT 4.0. While the disc will run on a 68K Mac, most of the software is Power Mac only. Similarly, for Windows 3.1 users, as well as getting funny file names, you'll discover that virtually all the demos are Win 95/NT 4.0 only.

Web editors go head to head

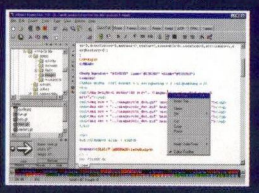
To accompany our look of the three version 3.0's of the latest Web page creation programs, we've got hold of demos of two of them.

■ **CLARIS HOME PAGE 3.0**
Claris HomePage 3.0 is a 30-day trial version of the easy to use WYSIWYG HTML page design tool. A versatile product, allowing beginners to get to grips with HTML design, while providing speed and productivity enhancements to experienced coders. HomePage 3.0 is dual platform



Claris Homepage 3.0

■ **ALLLAIRE HOMESITE 3.0**
Also, for Windows 95/NT 4.0 users only, there is a 30-day trial version of Allaire Homesite. Aimed at more proficient HTML coders, Homesite really speeds up productivity by assisting with the HTML markup process, featuring the ability to drag-&-drop links and graphics on to a page. Find out for yourself why more and more Web professional are turning to Homesite.



Alllaire Homesite 3.0

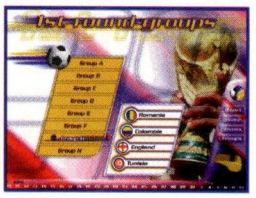
■ **DREAMWEAVER 1.0**
And although it's not part of the HTML editor round-up, we thought we'd also include Macromedia's excellent Dreamweaver 1.0 demo on the CD. While a powerful HTML editor in it's own right, Dreamweaver comes into it's own for the creation of Dynamic HTML pages, giving a much greater degree of control, movement and interactivity to a Web page.

Dreamweaver 1.0

If you haven't gotten into Dynamic HTML yet, then Dreamweaver is by far the best way to get started. Hiding all that hideous coding behind a simple drag-&-drop interface, and using a timeline, Dreamweaver is aimed at designers rather than bitheads. This 30-day trial demo will let you produce complex and sophisticated pages with a minimum of fuss.

World Cup 98 Interactive Wallchart

This sample from the Ballatines World Cup 98 disc, produced by Cimex Media, accompanies the feature in the magazine. Given that there's no chance you'll get tickets to any of the matches thanks to the great ticketing system, here's the best way to get the low down on La Coupe de Monde, and an example of multimedia at work.
This cut-down version allows you to find out about the groups and the venues, and get the low down on all the teams. The full disc will make extensive use of the Internet to update team data and results during the actual tournament itself. And there's even a 'beat-the-keeper' free-kick game as well, for you to practise your banana-benders with. You will need QuickTime installed on your machine in order to run this demo.



World Cup 98 Interactive Wallchart

Also on the CD

We've steered clear of shovelling loads of shareware and third-rate demos on to our cover CD, but we have gathered together some of the highlights of recent shareware releases, and other demos. You'll find them in the Accessories folder on the CD.

Thursby DAVE 2.0 (Mac)
If you're running a Mac among a bunch of PC's, then DAVE 2.0 from Thursby is an essential program. You'll be able to connect to other PC's on the network as simply as connecting to other Macs, and with version 2.0, they will be able to connect to you just as easy.

Try this fully functional demos, which will expire on May 31st 1998. Get ready to buy the real thing when the demo expires, because you won't be able to live without it.

North Plain TeleScope (Mac)
TeleScope is a database application designed to help management of multimedia files. Whether it's images, sound files, Web pages or page layouts, TeleScope aims to help you organise your files.

While the application program is available for the Mac, the TeleScope Viewer is available for both Mac and PC.

SnagIt (PC)
SnagIt is a screen capture program par excellence. As well as capturing static screens, you can also record screen actions as video files, and also capture text and convert it. It will even capture the entire contents of scrollable windows, ideal for screen-grabbing Web pages. This is a shareware program, so if you use it, register it.

Arcana Scheduler (PC)
The Arcana Scheduler is a scheduling service for Windows NT 4.0, used to automatically run programs at specified times. Written as a system service, so it runs as though it is part of the operating system.It features a graphical administration tool, flexible scheduling options, and support for remote administration. Version 2.0 features improved network support, usability improvements, and support for an API.

Modified Phatboy 1.0 (Dual)
New from the guys at Modified (the people who bought you FreQuency and Chillas interactive music CD-Roms) comes Phatboy, a funky sample manager. Follow the installation instruction carefully, and create four folders. Then drag in some samples (WAV's or AIF's)into the folders, and then put them together to mix up some 'kickin' tunes. This is a fully functional 7-day trial version.

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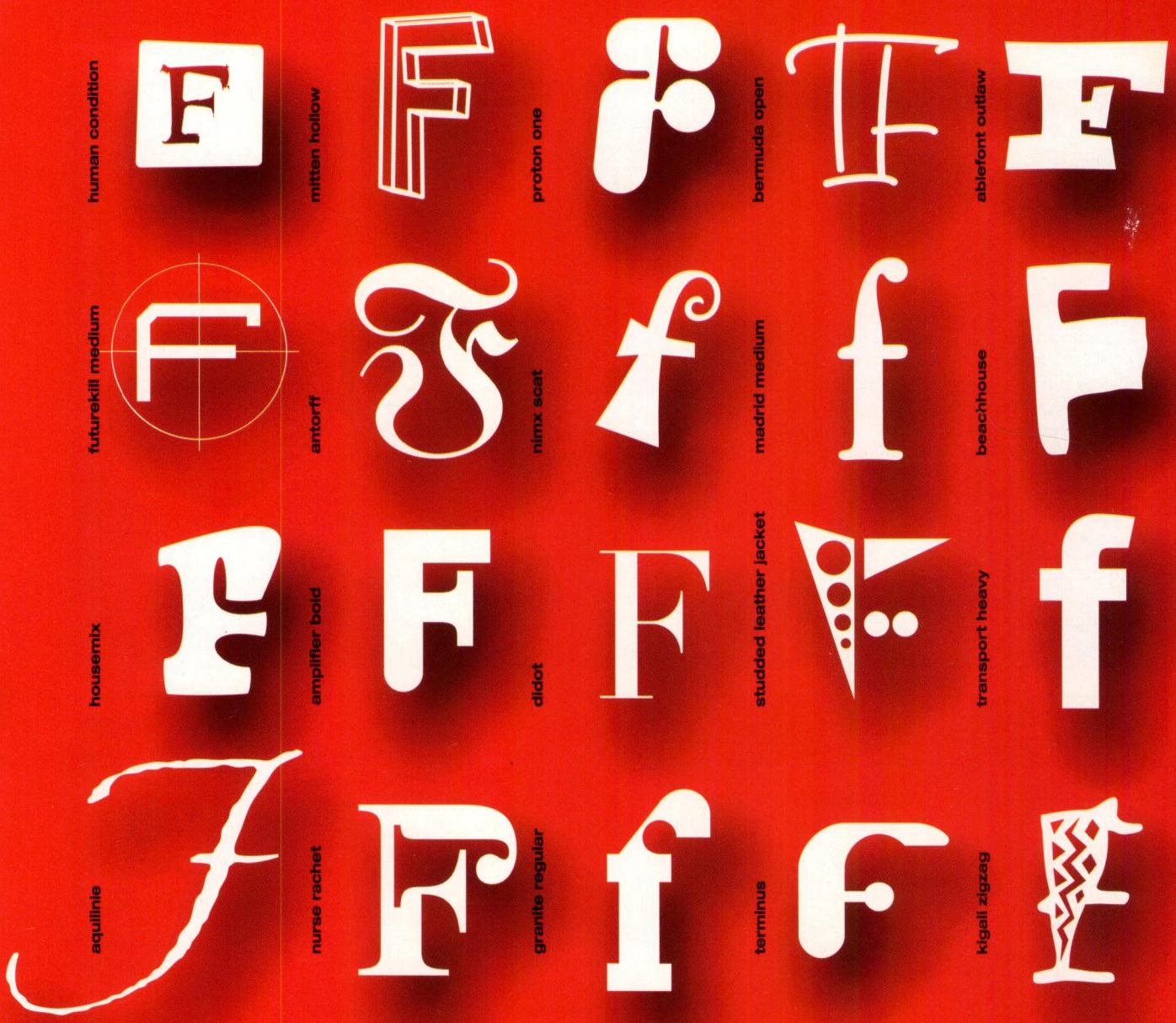

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fw fontWORKS

By Simon Jary

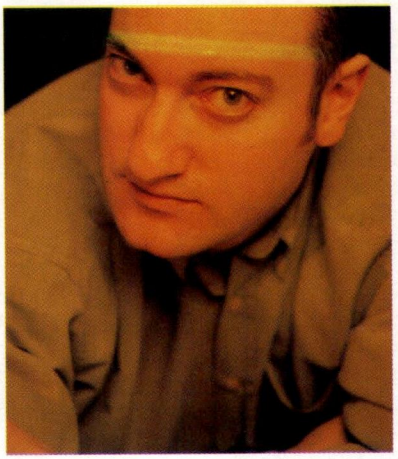
You are not alone

When I was a kid, still dreaming of shooting into space as an astronaut, I had some pretty definite ideas about how all this technology was going to change our world. The future was going to be all silver foil and LEDs. But the space age turned out to be so much vacuum. To my eternal disappointment, I never raced to work wearing a jet-pack.

Kids nowadays don't give an atom about space. They're far more realistic. Who needs rocket fuel and gravity boots when, with the nudge of a button, you can make Tomb Raider's Lara Croft spin through the air while double-gunning a grizzly?

This ain't no phoney space age. This is the digital age – where the answers to your dreams are just a few billion calculations away.

'The answers to your prayers are just a few billion calculations away'



Simon Jary by David Jackson

We talk of pixels, not paint; the Net, not newspapers; DV, not VT. Today's Hollywood studio doesn't have a back-lot, but it does back-up a lot. Recently recorded music *really* does sound better on compact disc.

The vanguard approaching this dizzying digitization of our culture, society and livelihoods is the creative community. Graphic designers, video editors, multimedia maestros, webmasters, illustrators, musicians, desktop publishers – the first noise we hear as soon as we get to work is the chime of our computers starting up.

RAM, bam, ethernet LAN.

But computers are no longer just the tools of our trade – they are now vital at the consuming end of the equation, as well. What you create on your computer must be able to work on, maybe, billions of PCs across the globe. The fastest changing industry in history has the most fragile standards – and these are modified, recognized and discarded daily.

XML, VRML, MPEG, GIF, PNG, JVM, ENOUGH ALREADY...

The temptation to stick to what you know best is almost over-powering. But the temptation to over-power is unresistable.

We are all digital drifters, graphical grifters. We like to imagine ourselves Mac users or Windows wizards. But some part of our work is always completed on a 'foreign' platform. Desktop publishers' QuarkXPress pages RIP through powerful Unix boxes, 3D images render more rapidly on multi-processor NT boxes, your intricate Web site is rent assunder because someone on the other side of the world is still running Windows 3.1...

All our differences have been digitized. It's time to wake up and smell the Java.

Digit is a new magazine for this coming age of digital convergence. The creative technologies are the first to ride this rolling cross-platform paradigm. *Digit* defies silicon snobbery, processor pride and media malaise.

Digit is platform agnostic. We are not in the business of persuading Mac users to switch to Windows. As Peter Worlock points out in the feature 'The Great CoNTender' (from page 58), a Power Mac is still the best creative tool for many digital creatives. But there are compelling reasons to consider harnessing the power of a Windows NT workstation; and there'll be times when only SGI will get the job done.

Mac or Windows? Who cares? It's you, your work and your audience that counts, not the uncommon code coursing through your computer.

Most of the major tools of the graphics trade – Adobe Photoshop, QuarkXPress, Macromedia FreeHand – run on both Mac OS and Windows systems today. But some great programs run on only one platform – CyberStudio on the Mac (see News, page 23), 3D Studio Max on the PC (see Reviews, page 44), for example.

But the greatest software and equipment works wherever it can. And new tools spring up daily to face the often absurd challenges we set them. For instance, Macromedia's Fireworks is a genuine contender to Photoshop in the new-media arena (see Previews, page 36).

Digit talks in Ks when discussing Web graphics, Ms when it's counting megahertz, and Gs when processing gigabytes. And we can't wait for the terrabytes...

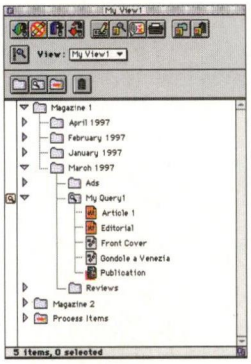
Java, FireWire, fibre channel, the Web's legion of acronyms, HiFi colour, screening innovations, printing revolutions, hardware, software – digital creative solutions for today, tomorrow and beyond.

Go forth and digit-ize! ■

Quark swaps Mac for Windows

Future XPress designed for Microsoft, not Apple, platforms.

By Simon Jary



Wearing DMS
The QuarkDMS User View palette lets you create hierarchies of "aliases" or "shortcuts," so you can organize the assets you work with in any way you like – regardless of how other people organize them. User views contain action folders, which let you automate repetitive tasks.

DTP giant Quark has stunned the publishing industry by switching its "reference platform" from the Mac OS to Microsoft's Windows operating systems. In another announcement, Quark signalled it's joining the race to manage sites' digital assets, by unveiling its Quark Digital Media System, a client-server package that it hopes to ship by year-end.

Quark made its shock system swap announcement at Seybold Seminars New York 98. From now on, it will use Microsoft technology, including COM and DCOM, as opposed to the Mac OS, for its "reference platform."

New versions of QuarkXPress will be designed on Microsoft operating systems, and Microsoft will certify XPress for use with BackOffice and Windows.

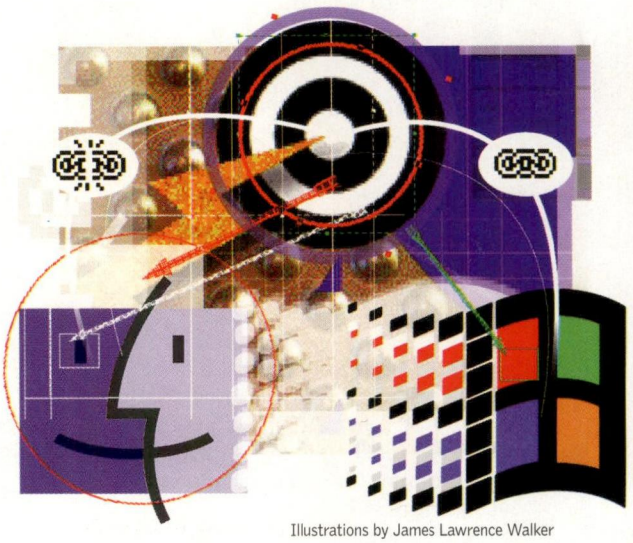
However, Quark was quick to counter the immediate "(un)popular misperception" that it was dropping its Mac XPress version.

"Quark's alliance with Microsoft in no way lessens our commitment to supporting our DTP applications for the Mac OS", said Quark spokesman Bob Monzel.

"The alliance is a logical result of our expansion into the client/server solutions arena, in which Windows NT plays a major role. We are simply anticipating the technologically complicated needs of new markets and taking the steps necessary now to meet those needs when the time comes."

"The publishing industry is changing rapidly. Microsoft provides the most extensible, robust platforms for applications development that will enable us to continue to deliver the innovative solutions our customers need."

"Quark is a major presence in the industry, and we believe as they move into new client/server technologies they will continue to grow with the same success they have realized as a desktop application leader," said Charles Stevens, vice president of Microsoft's Application Developers Customer Unit.



Illustrations by James Lawrence Walker

Deconstructing XPress

Last year there were hot rumours of Adobe's plans for a next-generation DTP package, code-named K2, built around a client-server asset-management system. At Seybold, Quark announced its own scalable, modular Digital Media System (DMS) built on top of an Oracle8 database.

"The explosive growth of electronic and multimedia publishing has produced myriad unmanaged digital content," said Susan Friedman, Quark vice president of product management. "This has created demand for a product that indexes and stores digital files, and extends their usefulness by managing access to them for future use."

Under the new system users will be able to interact with all the elements contained within QuarkXPress layouts. The software will automatically "deconstruct"

Seybold: NT going strong on server publishing software

Although the Seybold Seminars series of conferences for the publishing industry has long been considered a stronghold of Mac loyalists, announcements at March's New York show underscore that, on the server side, the trend toward use of Microsoft Windows NT is growing.

The Mac is still very strong as a platform for general-purpose utilities and client-side software, industry insiders are careful to note. But it appears that NT is taking a lion's share of new server-side releases.

"NT is faster," said David Smith systems integration manager for electronic imaging at Fuji Photo Film.

That's why the company's upcoming CelebraNT RIP server is based on NT running, on the high-end, Digital Alpha processors. On the client side, Macintosh users can control CelebraNT, he noted.

Though the company has not brought out new server software for Macs, he said, "the Mac is far from dead; we've just ordered new Macs for my department. They'll be here for a long time."

– Marc Ferranti

You can minimize the desktop footprint of the Apple Studio Display even further through the use of alternative, picture-frame stands.

Flat plan your workspace

Admit it – it's not your desk, it's your monitor's. If your workspace is dominated by a huge monolithic monitor, this stylish screen could transform your office outlook.

Apple's first flat-panel monitor, the Studio Display, features a 15.1-inch flat-panel screen. The active-matrix liquid crystal display (LCD) unit has a resolution of 1,024-x-768 pixels and has a viewable area equal to a 17-inch cathode ray tube (CRT) screen. The display supports resolutions of 640-x-480 to 1,024-x-786 pixels, and PAL, NTSC, and SECAM video input. The advanced display features tilt-and-swivel capabilities and smooth, precise height adjustment to ensure optimal viewing comfort, with easy-to-access control buttons.

The monitor will ship in May for about £1,250 and will be followed by other flat-panel products from Apple.

"You are going to see us do a lot more in the flat panel area ... to bring these things to the publishing area," said Apple boss Steve Jobs at Seybold Seminars New York 98.

XPress documents into their component assets, tracking the complete documents in addition to individual elements, as well as previewing XPress files in PDF.

Other modules offer users full access to the contents of publications assembled with the company's publishing work-flow package, Quark Publishing System. Access is also gained to the contents of multimedia projects created with QuarkImmedia and mTropolis, the media-authoring tool Quark has sensationally just dumped (see page 14).

DMS allows users to check digital content into and out of an asset repository by dragging and dropping items into folders; these folders will organize data according to user specifications without changing its actual location on the server.

Hot folders let users automate some production processes, such as converting graphics formats or linking files, with a proprietary scripting language. Users can locate assets via hierarchical keywords and full-text searches; thumbnail views; and an assortment of characteristics, such as file type or revision date, that can be modified by an administrator.

DMS also handles digital content created with Adobe Illustrator, Photoshop, PageMill and Premiere; Macromedia FreeHand; and Microsoft Word and FrontPage. It also creates previews and thumbnails for files in a variety of graphics, text, sound, video and animation formats.

The new software will be extensible via Quark XTensions; several third parties are already developing DMS add-ons. Quark will offer a collection of filters that will allow users of competing multimedia databases, such as Canto's Cumulus (see Digit Details), to transfer their data into DMS.

DMS' server software will be available for Sun Solaris and Windows NT servers, supporting Mac and Windows clients linked via a TCP/IP network, as well as a specialized Web client for viewing data via intranets or the Internet.

UK Quark users will get their chance to check out DMS at the Total Publishing held in London from 7-8 July 1998.

Alpha XPress

Quark also announced that QuarkXPress 4.0 now runs on Windows NT Alpha-based PCs, specifically Digital's AlphaPowered Creation Studio Personal Workstations.

While designers and printers always appreciate more power, the primary advantage of XPress on Alpha-based NT is the workgroup publishing possibilities, according to Quark.

"As publishing becomes more interactive, with routing, multiple editions, and electronic distribution, a robust, fully-integrated network will be imperative to an efficient workflow," said Don Lohse, QuarkXPress product manager. ■

OpenGL UPDATE

At Microsoft's Hardware Engineering Conference, in Orlando, Florida, at the start of April, Silicon Graphics unveiled Version 1.2 of its OpenGL specification. The spec, last upgraded in 1995, incorporates four major changes. Improved texture mapping allows multiple colours to be layered on a single texture. A new "pack pixel" format lets ISVs describe a scene in 8-bit, 16-bit, 24-bit, or 32-bit pixels, freeing the processor from converting pixels on the fly. Silicon Graphics has endorsed native Windows texture format, and image processing is combined with texture imaging so images can be manipulated after placement.

WIN 98 IN JUNE

Word at the Windows 98 Marketing Day, held at the end of March in San Francisco: Microsoft plans to ship Windows 98 on June 25. Still no firm dates on Windows NT 5.0, though...

Can ColorSync become the QuickTime of colour harmony?

Apple plans colour tool for both Mac and Windows.

One of the most far-reaching announcements for the publishing world that Apple boss Steve Jobs made during his Seybold New York keynote speech was that Apple plans to make future versions of the company's ColorSync software available for Microsoft's Windows operating systems by late this year or early next year.

The technology, already available for the Mac OS, enables content developers to manage colours across different applications and distribution methods, such as printers or Web pages.

Currently, Jobs said, maintaining the colour consistency of an image or video is one of the biggest challenges facing content developers. Colour prints differently than how it looks on a computer monitor. The explosion of interest in doing business on the Web makes ColorSync more important than ever, Jobs said. About 25 per cent of all returned merchandise that was bought on the Web was given back by consumers who said that the colour of the product received didn't match the colour they saw on their monitors, Jobs said.

'It turns colour management from a black art to a predictable science'

ColorSync alleviates the problem by allowing users of products like Abode Illustrator to convert an image created on one monitor to reflect the characteristics of another monitor. Users can also simulate on a monitor how colours will appear when an image is printed.

In a brief appearance during the keynote, Adobe CEO John Warnock said the technology turns colour management from a "black art" into a "predictable science." He also applauded Apple's decision to open ColorSync to Windows.

"Having a cross platform implementation of ColorSync will be very helpful to developers," Warnock said. "We're really happy that Apple's made this announcement."

ColorSync will also be in Internet Explorer 4.1 for the Mac, due out in April, Jobs said.

Illustration by James Lawrence Walker

Jobs also announced a 300MHz version of the PowerPC G3 processor, the core of Apple's G3 line of desktops. The new processor is 20 per cent faster than the current version of the chip, which has a clock speed of 266MHz, Jobs said.

Jobs also showed a system running a 400MHz PowerPC prototype chip made with IBM copper technology that will ship in April, 1999, he said.

The largest chunk of the keynote was spent touting the fruits of the PowerPC triad by demonstrating the speed advantage the G3 family offers over rival systems running Intel's Pentium II processors. Jobs said the G3 family is well suited to the publishing industry, which needs speedy machines for creating graphics.

Overall he thinks Apple's "speed lead is increasing" over Intel-based systems. Jobs said the 300MHz version would be equal to a 600MHz version of the Pentium II while the prototype 400MHz could only be matched by an 800MHz Pentium II.

While Jobs' talk of Apple's future was shielded in vague promises of "great stuff" on the horizon, many of the technologies demonstrated today were a "really big deal", he said. Those Apple technologies include new compression features in QuickTime 3.0, which is about to be released, and WebObjects, which connects databases to HTML (hypertext markup language) middleware. New services from the WebObjects Consulting Group will help companies implement Web-based applications, Jobs said.

Slash! Quark kills off mTropolis 2.0

Quark has discontinued its mTropolis multimedia authoring tool and shut down the subsidiary that developed it. The product was acquired last year when Quark bought mFactory Inc. At the time Quark said the purchase would open the door to new cross-development efforts between the company's QuarkImmedia software and mTropolis.

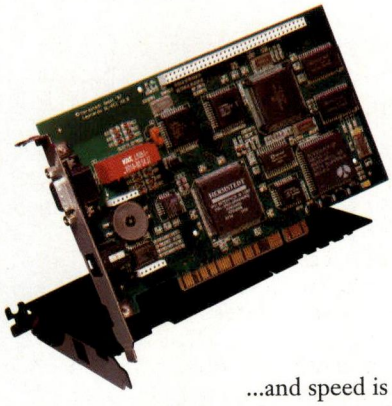
mTropolis will be killed after it reaches Version 2.0. The upgrade was originally scheduled to ship in May. The upgrade will be given free to existing mTropolis customers, Quark said, but it will not be sold to new users. Instead, mTropolis technology will be rolled into future Quark products, including the QuarkImmedia XTension.

mTropolis was ditched because the growth of its core market – CD-ROM authoring – had slowed and the product wasn't geared to creating Web content, Quark said.

"This was a hard decision," said Susan Friedman, Quark vice president of product management, in a statement. "But the bottom line ultimately made it a business decision."

QUARK, www.quark.com.

In Germany there are no speed limits...



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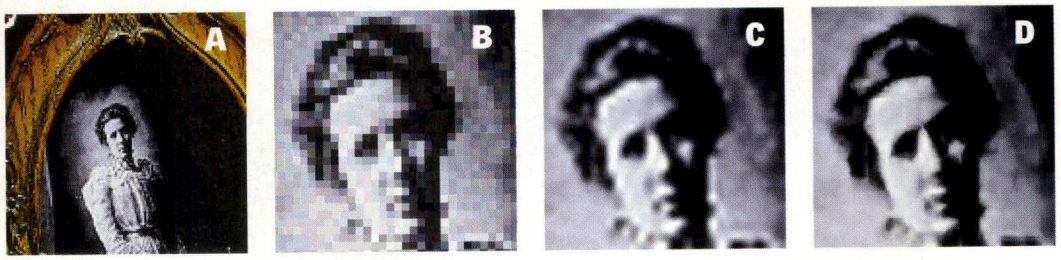


Head aches
(A) Original image
(B) 4x zoom with no interpolation
(C) 4x zoom using Adobe Photoshop's bicubic resampling
(D) 4x zoom using Iterated's Sting technology.

Pixels in a bottle: Best of STiNG

New digital image technology to squeeze images painlessly.

Iterated Systems Inc. has big plans for image compression. Despite the widespread use of pixel-based compression schemes such as JPEG and GIF, Iterated is hoping its fractal-based mathematics will transform the way pre-press and graphics professionals work with images.

Sting is a new set of cross-platform image-handling technologies based on Iterated's Imaging Systems Architecture.

Sting images will be scalable and resolution-independent, allowing a single compressed image to be output at many different resolutions and on many different devices without a loss in quality.

'You lose quality with JPEG. The tools have broken down'

Sting was designed with the pre-press and graphic arts markets in mind, but the technology can also be used for Web images.

The Sting file format will support most colour spaces, including CMYK, LAB and indexed colour. It will also offer a lossless compression mode and a 2-to-1 compression ratio.

The technology addresses the problem of "pixel flow" and how to maintain the quality of images across a variety of media, said Burt Smith, Iterated's vice president of marketing. Pre-press, traditional graphic arts and the Internet have varying needs for quality, he said.

Sting can free users from data loss when manipulating graphics, said Smith: "You lose quality by the time you've resized a JPEG image multiple times. We feel the tools have really broken down in those areas".

In contrast, Smith said, users will be able to generate both full-resolution and FPO (for position only) images from a small Sting image or spin off other versions intended for Web distribution. Sting enables those who deal with the creative end of digital imaging to use a single image across a span of media, from billboards to print to the Internet. The technology automatically adjusts for bandwidth, taking half of the traditional space needed for transmission and storage.

Iterated is discussing incorporating Sting into image file servers, output systems, databases and image capture devices with computer industry manufacturers and pre-press vendors. It has teamed with Color Technology to test Sting's pre-press capabilities.

Smart compression

Unlike an earlier version of Iterated's technology, which focused exclusively on fractal encoding, Sting will analyze an image and fine-tune the compression method for each region of an image.

"It's kind of a hybrid," said Russ Dodd, Sting product manager at Color Technology. "Something with a hard edge might get fractal compression, where a smooth background might get cubic interpolation. It's a smart compressor and a smart scaler."

The Altamira Group said it will add Sting technology to the Genuine Fractals Pro plug-in, a new version due in May. The Pro version features dramatic improvements in encoding speeds, support for CMYK and Hexachrome, lossless encoding, and superior scaling.

– Kelly Ryer & Nancy Weil
Iterated Systems, **www.iterated.com**
Altamira Group, **www.altamiragroup.com**

Internet will collapse under video's 'whipsaw' effect

The Internet is going to break several times over the next few years, causing carriers to scramble for more bandwidth, according to keynote panelists at Spring Internet World 98.

"We're going to run as fast as we can, give it more bandwidth and more flexibility within that bandwidth," said Jeanette Symons, chief technology officer at Ascend Communications Inc. The bandwidth that will be offered will be "driven by the imaginations of the content providers," she said, pointing to the increased demands of multimedia.

"By the year 2003, only 1 per cent of calls will be voice between human beings," said UUNet Technologies vice president Alan Taffel. The networks of the 21st century will be built for data, not voice.

"When it was human growth, we knew it was a growth rate of 4 per cent per year," he said.

Now, with the more than 10x-per-year growth in chip capacity, those predictions are less than clear.

Silicon cockroaches

Taffel called bandwidth hogs such as office fax machines, cell phones and personal computers with modems "silicon cockroaches."

"We'll build bandwidth as fast as we can, build the technology to go with it, and stay ahead of the curve," he said.

"But just barely."

"The wild card [in predicting bandwidth] is video," said Dave Garrison, CEO of Netcom On-Line Communications.

"It is going to have a whipsaw effect as it becomes more common on the 'Net."

– Sandra Gittlen

Intel bids for Hollywood stardom

Chip maker brokers deal with top visual-effects company, responsible for *Titanic* and other blockbusters.

Intel Corp. has set its sights on Hollywood via a new partnership with Canadian visual effects software company Discreet Logic Inc. Announced at the beginning of March, the alliance between Intel and Discreet is aimed at developing new high-end special-effects software for the production of feature films, commercials, music videos and TV programmes.

Due out in 1999, the software will run on multi-processor workstations running Intel's family of 64-bit (IA-64) processors, the first of which will be the so-called *Merced* chip. Merced, which is due in the second half of 1999, is expected to perform at clock speeds over 1,000MHz and improve graphics processing.

Flame effects by TVT Postproduktion (Germany)

But the agreement goes further than just a joint technology development partnership. Intel has also bought a 2.2 per cent stake in the company, Intel said.

Discreet Logic, whose software and editing systems were behind the creation of some of the special effects in the recent film *Titanic*, will develop a real-time software system designed for image compositing and processing functions, the companies said. Intel will work with Discreet Logic to make sure the new product is optimized for workstations running its 64-bit architecture. Discreet Logic already offers several of its products on Intel's 32-bit architecture systems.

Discreet Logic develops advanced systems and professional desktop software for creating, editing and compositing imagery for film, video, Web, HDTV, broadcast and interactive games. Its products include its D-Vision non-linear editor, its Illuminaire Paint and Composition software, and its Lightscape radiosity rendering system.

Aside from work on *Titanic*, Discreet Logic systems have been used on other blockbusters such as *Contact*, *Fifth Element*, *Twister*, *Apollo 13* and *Independence Day*.

"The agreement with Intel enhances Discreet Logic's ability to take our visual effects and editing technology into new and larger market segments through the widespread and growing use of Intel-based workstations," said Richard Szalwinski, chairman and CEO of Discreet Logic.

"The agreement gives us insight into advanced technology key to designing these new systems for Intel's IA-64 platform. With this relationship, we're advancing our vision of delivering the industry's most advanced open-platform digital systems for artists creating moving pictures."

Scene from the television series "Them", using Discreet Logic's Flint. Effects by John Gajdecki Visual Effects (Toronto)

By investing in companies like Discreet Logic, Intel "can learn a lot about the special effects market, which is not a market that we have a lot of visibility in," said Intel's Robert Manetta.

This graphics-intensive market is currently dominated by Unix vendors such as Silicon Graphics and Sun Microsystems, as well as Apple Computer. By contrast, Intel workstations are primarily targeted at enterprises, such as financial and governmental institutions.

To compete more effectively in the graphics segment, Intel will bump up the floating-point capabilities in Merced, incorporating four FPUs, as well as multiple integer units. Current Pentium II chips have only one FPU and two integer units. FPUs are used heavily for graphical and scientific applications.

"We're trying to show the mettle of the Intel architecture at the high end," said Manetta.

■ Discreet Logic recently purchased Lightscape Technologies, a developer of advanced visualization and lighting software tools for professionals in the design and entertainment industries. The acquisition adds Windows NT development expertise and an installed base of entertainment, games and design professionals using Lightscape's software. And in March the purchased MGI Software, which specializes in digital imaging and video editing.

The acquisitions form part of Discreet Logic's driving ambition to turn itself into "the leading provider of digital media solutions to professional and consumer markets," said the company. MGI amply fits that bill, since the company has two main product lines – PhotoSuite, Windows-based photo manipulation software for desktops and the Internet which allows users to edit, enhance, print and share photographs; and video editing software VideoWave. **– Kristi Essick & Simon Jary**

MGI, www.mgisoft.com
INTEL, www.intel.com
DISCREET LOGIC, www.discreet.com

Merced facts

Officially dubbed the Explicit Parallel Instruction Computing Technology (EPIC), Intel's 64-bit Merced processors will merge the instruction sets of today's CISC (Complex Instruction Set Computing) and RISC (Reduced Instruction Set Computing) processors into one processor. This will allow processing of Windows-based as well as Unix-based applications by the same central processing unit.

Image courtesy of Digital Domain TM Twentieth Century Fox ©1997 by Paramount Pictures and Twentieth Century Foxeffects by John Gajdecki Visual Effects (Toronto)

Inferno, Discreet's pinnacle visual-effects system, offers an integrated suite of image enhancement, motion tracking and effects tools for feature films, commercials, music videos, broadcast programming and interactive media. It also features tools essential for film projects, including the ability to work at higher bit-depth per colour channel, higher spatial image resolution and grain management.

Inferno was used extensively on many of the approximately 550 digital effects shots used in the making of James Cameron's *Titanic*. *Titanic* is currently the highest grossing film in motion picture history, with worldwide box office receipts in excess of $1 billion. The movie won 11 of this year's Academy Awards (Oscars to you and me) including Best Visual Effects (Robert Legato, Mark Lasoff, Thomas L. Fisher, and Michael Kanfer).

Digital Domain, the digital studio with 10 Inferno and 20 Flint systems, found the making of *Titanic* to be a challenge unlike anything before encountered.

"It was definitely a big job," says Carey Villegas, Compositing Supervisor and Lead Compositor on *Titanic*. "When there was a complex shot in *Titanic*, you can pretty much count on the fact that Inferno was used. We had well over 50 compositors working on this project, and we were going round the clock."

According to Villegas, Inferno was vital in the most spectacular appearance of the doomed ship.

The shot, known as "TD 35" to Villegas and the Digital Domain crew, was just one of the film's staggeringly ambitious shots.

Leaving Southampton harbour for her fateful maiden voyage, *Titanic* steams into the Atlantic and towards its destiny. At the bow is Jack Dawson (Leonardo di Caprio), arms raised in exaltation, defiantly bellowing "I'm the king of the world!". From a close-up of Jack, the camera tracks over his head and along the full length of the ship, revealing its awesome size, many computer generated passengers and full majesty.

Says Villegas: "TD 35 was by far the trickiest and toughest shot in the show. It involved over 200 elements... by far the biggest number of elements we've ever encountered. Also, the shot had to be changed from a sunset to an early morning shot, and the ship's direction had to be reversed. So we had to change the time of day, then flip the shot and make it look natural. We used Inferno for all the tracking, paint and finishing work."

Inferno's tracking and stabilizing also proved to be a valuable asset: "There was tons of Inferno tracking work on that shot," claims Villegas. "When you see Jack at the front of the ship, all those shots had to be tracked in by hand and were done in Inferno. That was some of the most intensive Inferno work we did."

Puffin's special-effects roll-out

Puffin Designs teamed up with Knoll Software to release new, realistic special-effects plug-ins at Las Vegas' National Association of Broadcasters show. Puffin also launched Commotion 1.5, its paint and special-effects application.

Knoll Lens Flare Pro, due in April for Mac OS and Windows NT, works as a plug-in to Adobe After Effects and Photoshop and Electric Image's ElectricImage. The software lets users create the kind of photo-realistic glares and reflections that occur when bright, natural light shines through a camera lens. The plug-in's Preview function displays how lens flares appear rendered in different parts of a frame, and the tool's Lens Primitives feature allows designers to build custom lens flares using settings – such as glows, spikes, Chroma Hoops and Aperture reflections, Puffin said.

Puffin and Knoll are also offering Missing Link, a utility for transferring files in Abekas and TAR formats to drives from Exabyte. This capability allows Mac-based video producers to access uncompressed video without a Unix workstation. Cybermesh will be a Photoshop plug-in that will allow users to save greyscale images as 3D models in DXF format.

Commotion 1.5 will provide a Motion Tracker tool that lets users create an unlimited number of points to track objects over multiple frames. Users will be able to define rotation and movement of objects over time by applying point data to rotosplines. Puffin is also developing Commotion Player NT, which will play back uncompressed video in real time on Windows NT systems. ■

PUFFIN DESIGNS, www.puffindesigns.com
TYRELL CORPORATION, 0171 343 5500

Java in Jeopardy!

Games a serious business at Sony

Sony Online ventures isn't playing around with its popular online games and electronic-commerce site. Sony is using Java to rev up and differentiate its World Wide Web site.

Sony is taking its successful game sites into a new realm by turning its fairly static single-user games into interactive, multimedia ventures with fast-paced animation and graphics.

And so far it is working. Sony's was the most popular entertainment Web site of 1997 among all sites accessed from home PCs, according to Media Metrix, a media research firm.

"The Web is being viewed more and more as an entertainment platform, and consumers demand very different things from their entertainment than from buying a book online," said Lisa Simpson, a senior vice president at Sony Online.

"People expect something more just because it's Sony, so we've got to give it to them. We can do that with Java."

Sony is building server-side Java applications that manage the multi-million-page site. The company also is installing Java Web servers that shoot information in dynamic pages from databases to users. But Sony's popular game sites, with 60 per cent growth in their audience and a total of 2.9 million users, will get the most attention.

"We had to make the site Sony quality," said Bob Mason, a developer at Art Technology Group, a Java development house that is working on Sony's site.

"We couldn't do that with HTML [Hypertext Markup Language] or dynamic HTML. We needed Java to make it dynamic."

But Mark Benerofe, vice president of programming and platform development at Sony Online, noted that working with a relatively new and immature technology such as Java has presented some obstacles.

"We definitely have skinned our knees, but we haven't broken anything yet," he said.

Some of those skinned knees have been the result of poor memory management and garbage collection. Memory management and garbage collection functions give memory to applications as needed, then collect it when a function is complete. Inefficient management slows performance, more so with a large, multiuser application.

"If you have a party with ten people and each one drops a piece of paper, it's no big deal," Benerofe said. "But if you have 10 million people at your party, that is a big deal."

New, immature technologies present some obstacles

Tim Lindholm, senior staff engineer at Sun Microsystems's JavaSoft division, said a new version of the Java Development Kit offers much better garbage collection and memory management.

Benerofe said JavaSoft had better deliver on those promises. But for now, Java has advanced enough that he is willing to take his falls with it.

"I thought it would be fun to walk on the tightrope," Benerofe said.

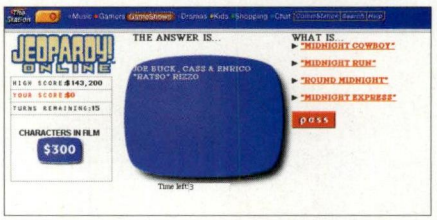
"A lot of other people at Sony weren't so nervous, but I knew what we were getting into – certainly a multi-million-dollar investment.

"And in grey hairs and worry, it's been at least another US$2 million."

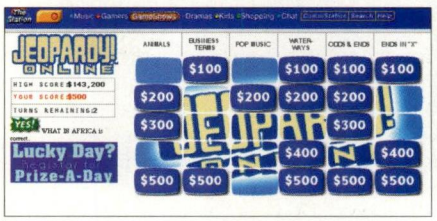
– Sharon Gaudin

SONY, www.sony.com

First chose your category and prize money...



A clock ticks away as Jeopardy gives you 20 seconds to answer its question...



The more questions you ask, the more cash you can win... or lose.

Sony is souping up its on-line Jeopardy site, which has become one of the most popular games on the Internet. By midyear, the site is slated for an update that will turn it from a fairly static game into a dynamic, multiplayer experience in which players have animated representations and are able to see four or five different camera angles. That gives them views from around the "studio" depending on who is asking or answering questions.

The on-line version of the most popular game show in the world, Wheel of Fortune, will undergo a similar Java-based overhaul.

MICROSOFT HAS PROVOKED an outcry among developers now that its new version of the Java programming language is out in beta.

Visual J++ 6.0 is being viewed by the Java Lobby as a sign that Microsoft wants to extend its stranglehold on the industry and further fragment the programming language developed and owned by Sun Microsystems, an archrival of Microsoft.

"Regrettably, the time has come to abandon all hope that Microsoft will cease its antagonism to Java and to us, the community of Java developers and supporters," said Java Lobby president Rick Ross.

"Microsoft has raised the stakes with a new attempt to fragment the Java platform. "If they cannot own or control Java, then they will do everything in their power to destroy it. There is no chance whatsoever that they will relent."

Visual J++ 6.0 is designed to "provide easy access to the full power of the Windows platform," according to Microsoft. The software includes new keywords that will run only on Windows.

Upping the ante somewhat by likening the conflict with Microsoft to World War II, Ross added, "From this point forward we must recognize that we are, in fact, at war with Microsoft."

Stand out in the traffic

How can you guarantee maximum impact for your Web site? Many sites are hit with the same problem - they take boring to a new dimension. It doesn't have to be this way. Today, Shockwave is the main attraction on tens of thousands of sites. Shockwave is a real solution for entertainment, advertising, learning and design.

Flash 2 breaks the bandwidth barrier with fast Shockwave Web animations, buttons, graphics and sounds and puts the full power of multimedia at your disposal. Suddenly, you can create a Web site that people want to spend time exploring again and again.

Use your favourite bit-map or vector illustrations and intelligent sound editing to create stunning animated pages that get you noticed.

And Flash 2 images are so compact that people don't lose interest waiting for them to download. Once the free compact player is loaded, your traffic will really start to flow.

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3.0-dom: Go Live, go anywhere

CyberStudio 3.0 calms fears over Web clashes.

GoLive Systems is well aware that its CyberStudio is a Macintosh-only Web authoring product in a Windows-dominated world. But with the beta release of GoLive CyberStudio 3.0, and the final version shipping in late April, GoLive has taken some of the concerns out of the Mac-based Web authors.

From within the product they will be able to view their pages as they will be seen across both browsers and across both platforms.

"Our layout can display like Internet Explorer or Netscape Navigator. There are some areas with a huge difference between browsers," said Andreas Poliza, chairman and CEO of GoLive.

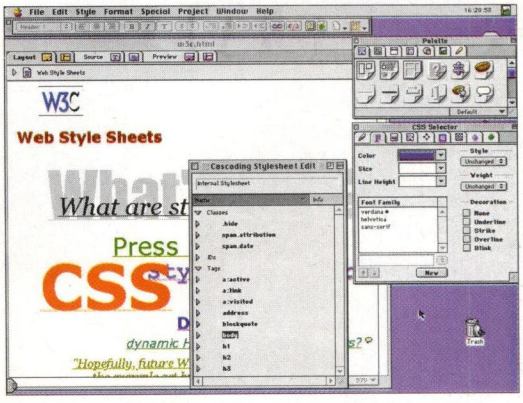
"We will also show how it will look on a Windows machine," he said.

'I've designed whole sites only to find someone on Windows couldn't view it'

What a Mac-authored site looks like to Windows users is a concern: "It's one of the most worrisome things in the world. I've designed whole sites only to find someone on Windows couldn't view it," said Web designer Douglas Fairchild.

Version 3.0's support for dynamic HTML and Cascading Style Sheets Level 1 (CSS1) brings it up to speed with other high-end authoring tools, such as Macromedia's Dreamweaver (see Reviews) and NetObjects Fusion. DHTML support arrives in the form of a CSObjects library, a collection of interactive elements that includes animated buttons, rollovers and formatted time stamps. Users can create their own time line-based animations.

The upgrade's enhanced Site Manager will be optimized to handle large Web sites. The Site Manager will treat the contents of a folder or a user's hard disk as a Web site, automatically updating hyperlinks when pages are moved. The software will automatically collect all items an author drags on to a Web page or site and store them in one folder. A Meta Plan view will let Web authors create a site by dragging and dropping page icons into a dialogue box.



CyberStudio 3.0's support for CSS1 will let Web authors use style sheets to position elements and links on a page.

CyberStudio 3.0 will automatically generate an inventory list for each project, including elements such as fonts, colours and links. The new version will offer incremental uploading to FTP servers; users will upload or download only the parts of a project that have changed. The HTML Editor displays line numbers in HTML code, and the software's new Go To Line feature allows authors to jump directly to specific places within HTML files. Source code is also colour-coded.

Other new features will include support for stationery, Apple's WebObjects 3.5, QuickTime 3.0, polygons in image maps and the capability to open multiple files simultaneously. Printing from the Site and Link views will be improved.

GOLIVE SYSTEMS, www.golive.com.
COMPUTERS UNLIMITED, 0181 358 5857

DYNAMORPH ADDS DYNAMIC GRAPHICS

Morph Technologies has added dynamic graphics features to DynaMorph, the company's server-side scripting technology.

Version 1.6 of the package can create graphics using data contained in a database, file or form submission. Morph Technologies said this capability can be used to create bar charts and progress indicators, and it can automatically generate thumbnail images.

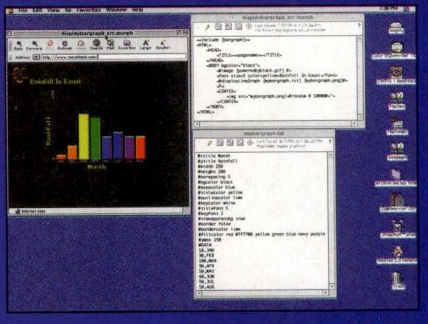
The software can generate new graphics when a form is submitted. For example, users can enter a collection of variables and click a button to produce a new image.

The company said DynaMorph 1.6 can also draw geometric shapes - including circles, rectangles, lines and polygons – on to images. It will draw text on to a background image, and it will copy portions of images onto one another. While Version 1.6 supports a small collection of bit-mapped fonts, a future version will handle a wider variety of typefaces, Morph said.

DynaMorph can be used to create chat rooms, online stores and guest books. It works as a plug-in for Microsoft's IIS, Netscape servers, and WebSite on Windows 95 and NT, StarNine WebStar on the Mac, as well Apache and Netscape on Unix.. It

The package costs $499 (about £300). Owners of Version 1.5 can upgrade to Version 1.6 for free.

MORPH TECHNOLOGIES, www.morphtech.com



All bar none
DynaMorph shows the resulting image as well as some of the source code that was used to generate the graph.

Nothing neutral about new Standard RGB

As most publishing pros know, what you see is not always what you get – especially when you're trying to manage colour on the Web. Hewlett-Packard, Corel, and Pantone hope to ease your difficulties by adopting Standard RGB (SRGB) as a default colour standard in all their future hardware devices and software applications.

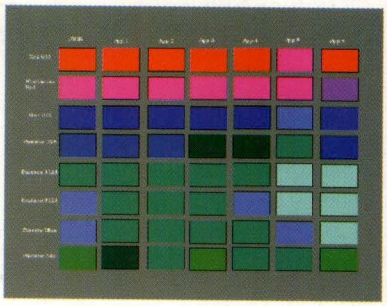
By basing a colour space on the most common viewing variables for an "average monitor" (in other words, building a colour profile from typical gamma, white point, and phosphor values), SRGB is designed to guarantee accurate colour consistency from input to output – typically from monitor to ink-jet printer.

"Someone creating a proposal with a company logo shouldn't have to be an expert in colour science," says George Mulhern, general manager of HP's Color LaserJet division. The companies expect SRGB to be a boon for Web-based businesses where accurate colour is critical, such as e-commerce catalogue sites.

'Web pages made before the standard may look worse'

For graphics professionals, though, there's less to SRGB than meets the eye. Despite this latest announcement and the endorsement of the World Wide Web Consortium, there are a number of shortcomings. For designers frustrated with converting RGB or CMYK colour gamuts into the Web's limited palette of 216 Web-safe colours, SRGB's only slightly less limited colour space may not be enough of a solution.

Also, "any standard choice of phosphor chromaticities, white point, and gamma will favour some vendors at the expense of others," says Todd Newman, author of the ICC study *Improved Color for the World Wide Web*.



Colours can shift from application to application, as shown. Hewlett-Packard, Corel, and Pantone hope to solve this problem through a broad implementation of SRGB.

"Given the extent and speed with which devices drift from calibration, it is possible that results would be no more accurate than they are today," he adds.

Other concerns include the standard's exaggerated Windows bias and the enormous question of legacy content. Standard RGB specifies a gamma value of 2.2, a typical profile for a Windows monitor, while Mac monitors tend to run closer to 1.8.

"Web pages made before the standard is widely adopted may look worse; colours may be shifted and appear darker," says digital-colour consultant David Spencer.

Colour specialist Michael Kieran notes that "although SRGB is not a bad compromise among the many existing models of calibrated colour spaces, existing dot-density tools and the ICC architecture are still the best ways to control electronic colour." Kieran hopes that major software publishers can "create automatic colour-control tools for the emerging mass market without hindering colour pros."

HP, which co-authored the standard with Microsoft, currently supports the SRGB colour space in its ScanJet 67100C scanner and DeskJet 890C printer. CorelDraw 8 also supports the new standard, as does Pantone's ColorWeb Pro digital-colouring application. All future Windows operating systems, including Microsoft's ICM colour-management system, will have built-in support for SRGB.

HEWLETT-PACKARD, www.hp.com
COREL, www.corel.com
PANTONE, www.pantone.com

NO HASH ABOUT NEW ANIMATION MASTER 98

Hash Inc. is warming up Martin Hash's Animation Master 98, a major upgrade to the company's flagship 3D animation software. The new version of the $199 character animation tool is in beta testing and due to ship in April. It will feature a particle generator that features directional controls and collision detection; it supports force objects, such as wind and gravity.

The upgrade marks the debut of Action Objects, a feature that embeds temporary objects within actions that are then applied to characters. For example, stars briefly circling an injured character's head can be controlled by this feature, said Ken Baer, Hash director of Mac product development.

The upgrade will feature a glow function and volumetric effects, such as steam and smoke. Users will be able to apply animated Materials, or surfaces, to create effects such as waves and ripples. The new version will also support plug-in Materials, as well as including a faster renderer and offering improved motion blur, soft shadows and texture mapping.

In September 1997 the company released Animation Master 5.0, which replaced the ray-tracing renderer with hybrid ray tracing and z-buffer rendering. It also added single-model bone animation and constraints. Real-time shading via Conix's implementation of OpenGL was also introduced with Version 5.0.

Animation Master, which was originally known as Playmation, is available for Windows 95 and NT machines, as well as Power Macs.

– Rebecca Gulick

HASH, www.hash.com

Animation Master images by Vincent Cleas.

CINEMA 4D™

XL

Some things grow on you

Addicted to 3D and looking for more realism? The popular 3D software, **CINEMA 4D**, has evolved and, just like the natural world, it can now create totally realistic organic objects and scenes through new **XL** features such as **NURBS**, bones and procedural textures. Combine these with volumetric lighting, an extensive particle system, un-paralleled animation features plus a plug-in architecture and you have a package capable of handling any 3D project, from product design to the highest quality video and film work. In a short time, **CINEMA 4D** has gained a large, enthusiastic user base for whom the product has become a natural extension to their body of design tools ... and these users have already raved about the new **XL** edition. Here, at last, is a 3D product that will grow on you—and you can be sure that **CINEMA 4D XL** will grow *with* you, even if all you want to render is a box of chocolates.

Rose model Copyright © 1998 MAXON Computer GmbH

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Better screening... Dot Dot Dot

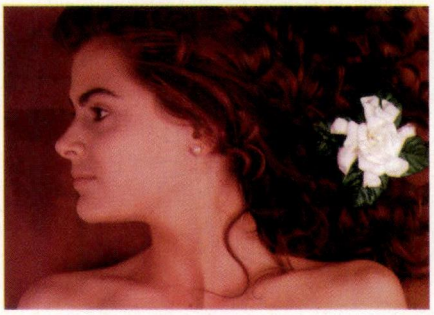
From the amazing-but-true file come two screening technologies that promise better screens and faster plate production. Another new technology promises a manageable ink-keying standard.

MegaDot, a screening technology due from Heidelberg this spring, uses lines instead of dots for three of the process colours, thereby avoiding moiré patterns and rosettes.

A dot is used for the black separation, with lines for cyan and magenta separations positioned at 0 and 90 degrees, respectively, and another line for yellow at 45 degrees. The lines can then be overprinted at 90 degrees without any colour shift. MegaDot is available only with Heidelberg's Delta IS RIP.

Optronics' new **IntelliDot SpeedScreen** technology, which the company says triples the productivity of its computer-to-plate platesetters by imaging at lower resolutions without sacrificing halftone quality. With conventional platesetters, every time the resolution is doubled, the time to produce one plate or film quadruples. According to Optronics, IntelliDot SpeedScreen speeds plate-production times up to 300 per cent by enabling the imaging of higher line-screen plates at lower resolutions. So, a full set of six-up plates (at 29 x 35 inches) can be manufactured in ten minutes at 175 lpi.

Using lines instead of dots avoids moiré patterns and rosettes



IntelliDot SpeedScreen produced this sample at 175 lpi in less than three minutes.

IntelliDot supports screen frequencies from 65 to 175 lpi at 1,000 dpi; 300 lpi at 2,000 dpi; and 350 lpi at 3,000 dpi.

IntelliDot SpeedScreen is available for the company's four-up/six-up PlateSetter Electra, as well as the eight-up PlateSetter Aurora and Aurora ALS systems. Both options are also available as upgrades to any installed Optronics platesetter.

PostScript ink

Two years have passed since the announcement of CIP3's Print Production Format (PPF), a European postpress-industry initiative to standardize printing processes the same way that PostScript co-ordinates pre-press procedures.

Now from Scitex comes **InkPro**, a digital ink-keying application that brings the European consortium's ideal of an integrated postpress future one step closer.

InkPro measures the precise amount of ink coverage across an imposed page and feeds the information directly to the press's ink-management system. Printers can measure ink usage down to the exact pound.

Integrated into Scitex-based workflows, InkPro makes its calculations from the raw data in the PostScript file. With the ink-key information set before the film or plates are exposed, makeready and turnaround times are greatly reduced. Other benefits include the reduction of ink and paper waste.

SCITEX, www.scitex.com
HEIDELBERG, www.heidelbergusa.com
OPTRONICS, www.optronics-intl.com

SGI and Microsoft turn up the 3D heat

Silicon Graphics Inc. (SGI) and Microsoft Corp. have formed a technology partnership that they hope will make it easier to design and deliver sophisticated multimedia to PCs everywhere. The two companies will produce a package of 3D-graphics application programming interfaces (APIs) called **Fahrenheit**, based in part on SGI's OpenGL technology.

"This relationship allows us to take technology that has been hitherto available only in the high-end space and really make these capabilities available to the tens of millions of people who buy PCs every year," says Paul Maritz, group vice president of platforms and applications at Microsoft. In other words, those multimedia CD-ROMs you're designing could soon sport the same level of white-knuckle sophistication as a military-level flight simulator.

Microsoft envisions a future filled with high-end 3D graphics. Virtual environments will be created in applications for a broad range of consumer devices, some of which "we haven't even thought of today," says Maritz.

For its part, SGI is eager to expand beyond its Hollywood niche and find an audience for its visual-computing technologies outside the movie theatre. In addition to the Fahrenheit alliance, SGI recently announced a line of lower-end 3D workstations called Visual PCs, which will run Windows NT software.

While Fahrenheit's initial targets include games and CAD and scientific applications, the APIs are also expected to be used in Web and graphics applications. Developer toolkits will begin rolling out in phases over the next three years. However, the full effects of the alliance won't be felt until the first half of 2000, when the primary graphics API is released.

SILICON GRAPHICS, www.sgi.com/fahrenheit
MICROSOFT, www.microsoft.com/directx.

300% Digital Video

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Radius EditDV is a breakthrough non-linear digital editing solution for the desktop, suitable for the millions of DV camera owners producing video content.

Its intuitive interface, designed for editors and computer users alike, allows any standard of video editor – from amateur to professional – to produce professional quality results. 100% digital quality in, 100% digital editing and 100% digital quality out, with no risk of degradation.

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Radius - A Family of Digital Video Solutions

If you simply want to capture the highest quality stills from your DV camera or VTR then you should take a look at Radius PhotoDV and if want to capture video clips for QuickTime but are happy with your existing editor, MotoDV is available as a separate product too.

"EditDV is a good value video-editing suite, and the advantages of being digital throughout make it very tempting for professional users." MacUser 20 February

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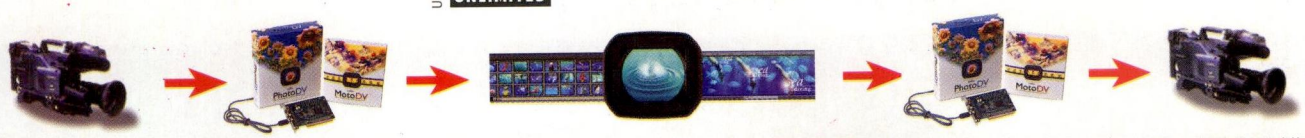

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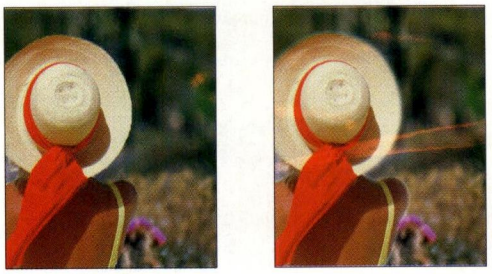


The edges of the left image were blurred by EdgeWizard; a Photoshop filter blurred the right image's edges.

One of the best features of Chroma Graphics's Chromatica is its ability to edit and blend the edges of images quickly and with a variety of effects, cutting down on the time it takes to composite images. With **EdgeWizard**, Chroma Graphics has taken Chromatica's edge-blending tools, refined them, and packaged them separately as an Adobe Photoshop plug-in.

EdgeWizard has four tools to apply 8-bit edges to photoshop masks: Quick Edge, which creates edges in seconds; Gaussian Edge, which applies a standard blur to an edge (with a dither option that breaks up banding); Variable Color Edge, which analyzes pixel values to create a natural-looking variable edge; and Pixel Edge Brush, which smoothes edges with a brushstroke.

The plug-in features unlimited undos and supports CMYK, RGB and LAB formats. Available for Windows 95 and NT, and Mac, EdgeWizard costs £110.

SOFTLINE, 0181 401 1234
CHROMA GRAPHICS, www.chromagraphics.com

Invigorating!

Designing with Adobe Illustrator and Macromedia FreeHand takes on another dimension with Zaxwerks' **3D Invigorator** plug-in, which transforms vector images into 3D models with controls for light, reflections, and shadows.

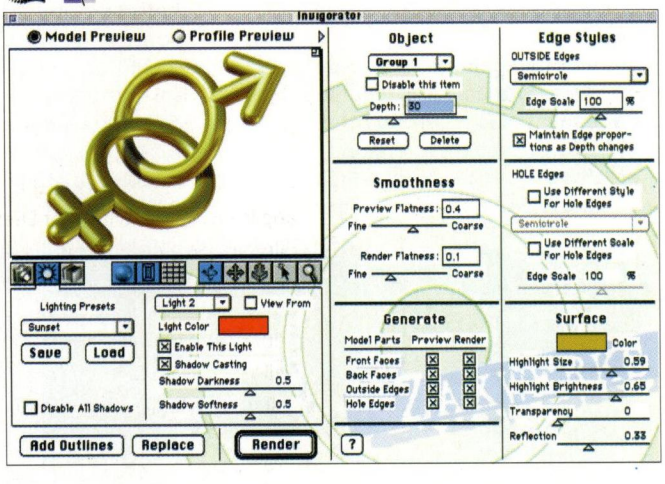
3D Invigorator's single window interface was designed for the print or Web designer who wants eye-catching 3D looks, but doesn't have the time or interest (or maybe even the ability...) to learn a full 3D application.

Its built-in QuickDraw 3D previews show all models as solids, not wireframes. It has more than one hundred modelling styles that the user can browse through. The user can go back to a scene at any time, even once it has been rendered or saved, to adjust any part of the image. When you tweak the shapes of the original vector artwork, the whole scene automatically updates using the new shapes.

Curve smoothing can be set to create fast-rendering previews and super-high quality finals. Different Edge Styles can be used for the holes in objects when they start to plug. Alongside high-quality anti-aliasing, and shadow softness controls, there is third-party rendering support from ThinkFish and Lightworks. A special feature renders the image at any dpi and places it on to the page into a user-defined banner or graphic box, especially convenient for Web designers creating graphics to fit specific page areas.

Available at present only for Power Macintosh, 3D Invigorator costs $249 (Zaxwerks is currently seeking UK distribution). Until then, contact the company direct. 3D Invigorator for the Windows versions of FreeHand and Illustrator will be available soon, according to Zaxwerks.

ZAXWERKS, www.zaxwerks.com



3D Invigorator transforms vector images and text into 3D models.

The image is rendered at any dpi, and placed into a user-defined graphic box

Extensis ports top XPress HTML tool to Windows 95 & NT

Beyond the Mac

Version 4.0 marks the Windows 95 and NT debut of Extensis's **BeyondPress** tool for converting XPress documents into HTML files for publication on the Web. Version 4.0 adds support for dynamic HTML. BeyondPress 4.0 will ship in June. **PhotoAnimator 1.0**, a new tool for creating Web animations, will be available in a bundle with BeyondPress 4.0 or as a separate package. The software will let users create time line-based animations and apply effects such as transition layers and gradient masks on the fly. **www.extensis.com**

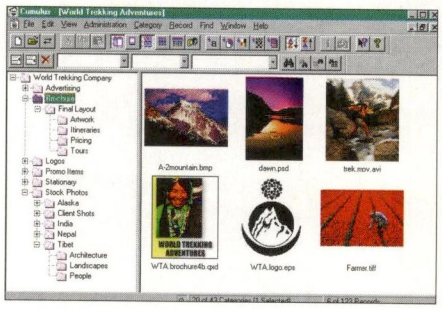
Cumulative effort at file management

Canto Software brings its multimedia file-management tool to the Windows NT platform with **Cumulus Media Management System 4.0 for NT**. (A Unix version is planned for later this year; Mac version 3.0 is in existence.)

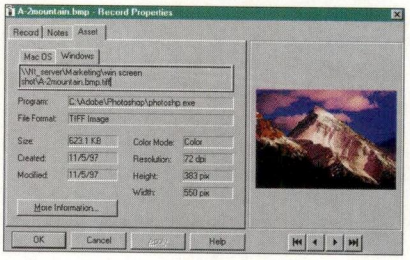
The server software supports about two dozen major file types, including PDF, QuarkXPress, and Macromedia FreeHand 7.

It features three thumbnail viewing options (up to 192-x-192 pixels) and allows searches by file type, resolution, and modification date. The interface provides hierarchical category listings that can be placed on the Internet.

This new network version (distributed in the UK by 4-Sight) provides client-server functionality for both Mac and Windows 95/NT users connecting simultaneously over TCP/IP.



Canto's Cumulus gives NT users a media-management system



Multiclient versions start at £1,899 for five users; two single-user programs, Desktop Plus 4.0 (£499) and Desktop 4.0 (£149), are also available.

4-SIGHT, 01202 758 400
CANTO, www.canto-software.com

IMAGE EDITORS EASILY LEAD

PhotoImpact lets you add effects such as rain, snow or bubbles to an image.

Two upgraded image editors respond to the increasingly specific needs of graphic artists. Lead Technologies' **Leadtools 9.0** is a customizable toolkit that includes more than 300 functions for colour and greyscale imaging.

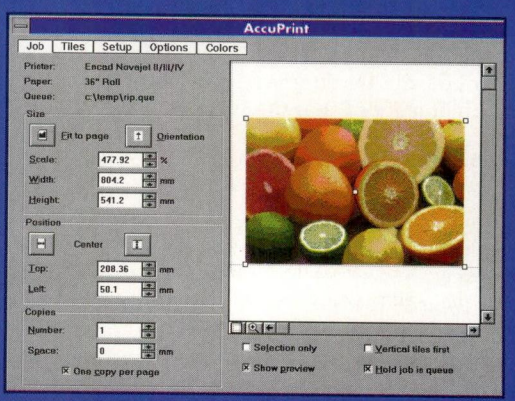
New features include tools to handle OCR, FlashPix files, and video. Price ranges from £195 to £645, depending on the configuration.

Ulead Systems' **PhotoImpact 4** (£99) for Windows focuses on Web design as well as integration with Microsoft Office. It features utilities for creating GIF animations, buttons, and background designs; uploading sites; and optimizing PNG and JPEG images for the Web. Paint, Clone and Retouch Tools, object display, object merge, rotate, resize and most effects now support MMX acceleration.

Over 250 professionally designed GIF animations are supplied for Web pages, conveniently divided into categories: Bullets, Buttons, Dividers and Alphabets.

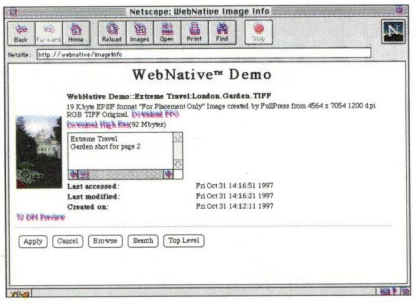
Leadtools: EQUATIONS TECHNOLOGY, 01935 412 412; www.leadtools.com
PhotoImpact: BIT UK, 01420 83811; www.ulead.com

MAKING A LARGE RIP



ScanVec's £2,295 **AccuPrint** lets pre-press professionals print large-format artwork directly from programs including Adobe Illustrator and Photoshop, CorelDraw, Macromedia FreeHand, and QuarkXPress. The product supports colour separations, tiling, and step-and-repeat functionality; it also includes a PostScript raster image processor and support for an array of wide-format printers. .

BMP, 01932 568 5550; www.scanvec.com



Faster Web images

Helping to speed the conversion of high-quality digital image files into Web-ready formats, Xinet's WebNative automatically creates JPEG and GIF files from 17 image-file formats, including DCS, EPS, native Photoshop, Scitex CT, and TIFF.

Xinet's **WebNative** (£4,995) automatically selects an appropriate resolution, colour space, scale, and colour palette, and it retains masks and clipping paths. The application can also be used by pre-press professionals who work with Xinet's FullPress OPI server to distribute low-resolution For Placement Only images (FPOs) to their clients over the Web using a standard Web browser. In addition, the product allows printers to maintain easily accessible digital libraries for their clients.

WebNative's search engine allows customers to review all their images resident on the vendor's server, downloading the smaller, more efficient FPOs of selected images. Placement images can then be used for document layout; customers send the document back to the vendor via the Internet or removable media, and Xinet's FPO relinking QuarkXTension, Picture Wrangler, relinks all the FPOs to their high-resolution version at the vendor's site.

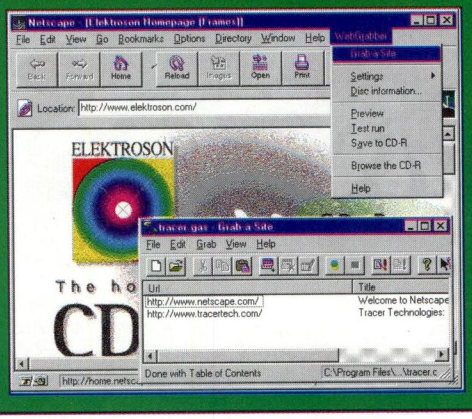
TURNING POINT, 0171 837 2840
XINET, www.xinet.com

COMPACT WEB SITES

Designed to make it easy to archive Web content or browse sites off-line, Elektroson's **WebGrabber 2.2** lets you record entire Web sites or portions of sites on a CD.

The £29 software downloads HTML files, Java applets, and multimedia files and records them on a CD-R or CD-RW disc as a functioning Web site. It's compatible with all CD recorders and CD-RW recorders and Windows 3.x, 95, and NT.

ELEKTROSON, 0031 411 619 111, www.elektroson.com

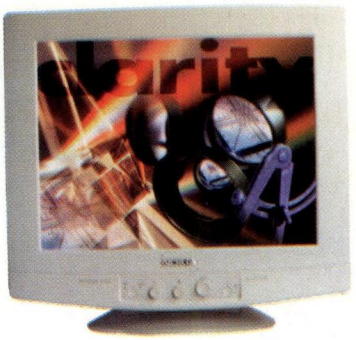


Monitoring precision

For designers and publishers who need flicker-free precision displays, Nokia Display Products offers its **445Xpro**, a 21-inch monitor that supports resolutions up to 1,800-x-1,440 with an 80Hz refresh rate.

The £1,199 monitor features a scan frequency of 121KHz and a front-panel interface for screen adjustments. For Mac, Windows, and Unix. £1,199.

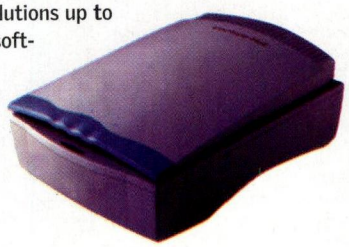
NOKIA, 01793 512 809, www.nokia.com



Getting Jaded too...

Good-quality flatbed scanning keeps getting cheaper. Linotype's **LinoColor Jade 2** for both Macintosh and Windows costs just £309 and scans at resolutions up to 600-x-1,200dpi (interpolated to 3,600dpi). The included LinoColor software features automatic colour correction and colour matching for print and Web. Configurations with additional software and a transparency adaptor are available.

LINOTYPE, 01494 471 100; www.linocolor.com

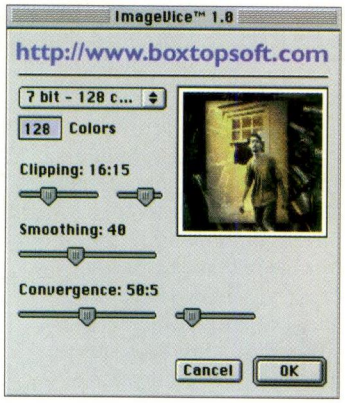


Taking the Clik!

As digital technology goes mobile, digital storage is starting to come along for the ride. Iomega's **Clik**, a nifty 2-x-2-inch storage system, is designed for digital cameras and other small, portable electronic devices. Clik disks store up to 40MB on a miniature disk drive with a 0.7MBps transfer rate.

IOMEGA, 07000 466 342; www.iomega.com

→



Compressing the size of Web images by up to 70 per cent, ImageVice is an Adobe Photoshop plug-in that uses a unique colour-reduction technology to reduce image size while preserving image quality.

Vice squad squeeze

BoxTop Software's **ImageVice** is a new tool for frustrated Web and multimedia designers that solves the problem of bloated graphics file sizes, making Web pages load up to three times faster or having up to three times the content in the same space.

ImageVice colour reduction technology uses a procedural method for removing space-variant system imperfection, neural modelling of the logarithmic response of the human eye, and employs a new colour mapping technique based on perceptual criteria for shape-form shading to produce superior visual results and also greatly improved compression levels.

ImageVice works with GIF, PNG, PICT, and BMP files. For Mac and Windows 95/NT. ImageVice is available directly from BoxTop Software's secure Web site at $49.95. Get the demo from CDigit 1.

BOXTOP SOFTWARE, www.boxtopsoft.com

Bringing XPress images into focus

If you're tired of squinting at fuzzy, pixelated images in QuarkXPress, listen up. Koyosha Graphics's **Enhance Preview XT** (EPXT) is a new, low-cost, QuarkXTension for QuarkXPress 3.2 and 4.0 that provides high-quality on-screen previews inside XPress that enable accurate on-screen proofing, known as "soft proofing". EPXT's on-screen images are crisp, sharp, high-resolution previews representing the actual CMYK output.

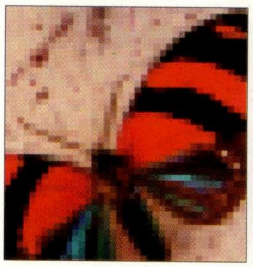
Enhance Preview XT also allows users to view images at higher magnification while eliminating jagged edges. Users can zoom into colour, greyscale and bitmap images at up to 1,200 per cent magnification in XPress 3.32 (800 in 4.0).

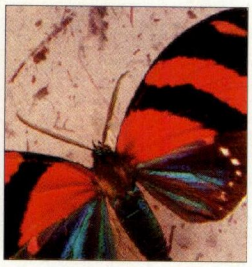
View high-res images without jagged edges

With Enhance Preview XT, users bypass the low-resolution previews embedded in pixel-based images such as TIFF, EPS, Scitex CT, DCS and, instead, view the high-res data from the source files. Enhance Preview XT for Power Mac is expected to be available later this spring, at the suggested retail price of $99.

While EPXT focuses solely on enhancing on-screen display, Precision Preview XT 2.0 (£145) adds features for enhanced printing, including the ability to place IVUE and FlashPix files into XPress, and to control separations from RGB to CMYK, as well as an Unsharp Masking feature.

www.koyosha.com/xt; FITS, 01442 239 202





Koyosha Graphics's Precision Preview XT lets you magnify images in QuarkXPress pages by up to 1,200 per cent. A free, functional, trial version (limited for 30 days) is available on CDigit #1.

PRINT WIDER SCANS DIRECT

Speedily translating wide-format scans into wide-format prints, Vivid Image Technology's **Vivid Image SP5000** scan-to-print controller cuts out the intermediary: the computer. The controller connects the scanner directly to the printer and supports wide-format output up to 36 inches.

A touchscreen front panel manages image cropping, image enlargement or reduction, and the number of copies. The controller, which includes a RISC-based image-processing system, supports most wide-format scanners and printers. Pricing starts from £6,000.

TDS CAD GRAPHICS, 01254 676 921
VIVID IMAGE, www.vividimage.com

GO FOR THE GOLD

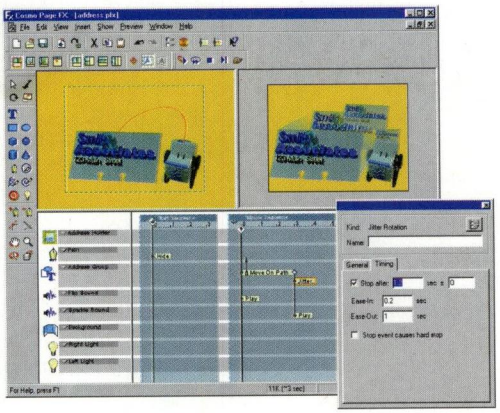
Wacom has added two tools to **PenTools 2.0**: gold or silverleafed effects and brush-on patterns. The software gives more flexibility to designers using Wacom graphics tablets.

Compatible with Adobe Photoshop, MetaCreations Painter, or Corel Photo-Paint, the upgrade includes the previous version's array of effects.

Available for Windows and Mac, the upgrade for PenTools is free for download from Wacom's Web site.

Wacom tablets are distributed in the UK by Computers Unlimited, 0181 358 5857.

WACOM, www.wacom.com



Cosmo Web tonic

Chief among the many headaches that Web designers deal with is the challenge of squeezing eye-catching graphic information into a format that saves both memory and screen space. As a tonic for their distress, Cosmo – the new software-manufacturing unit of Silicon Graphics – prescribes **Cosmo PageFX**, a vector-based illustration tool for the Web.

With vector images, Cosmo says, you can create high-quality, low-memory images and animations that download faster than bitmaps and can include more sophisticated interactivity, such as sounds that get louder as the viewer's cursor approaches a button. The use of 3D images can save valuable screen real estate: rotating cube-shaped menus, for example, can display three times more information than flat menus.

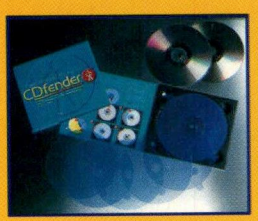
Cosmo PageFX lets Web designers create vector-based 3D images and animations and save them in VRML 2.0 format. Cosmo is hoping that VRML, as an open standard, will prove more popular than Macromedia's proprietary Flash format, the only competing vector-based format in the Web-publishing market. Available for Windows 95 and NT, you can buy Cosmo Page FX direct from the company's Web site for $329.

COSMO SOFTWARE, http://cosmo.sgi.com

CD VIRGINITY PRESERVED

Virgin Euromagnetics has captured the retail distribution rights to **CDfender**, a CD protector, it was announced at the Electrical Retailing Show 98 recently. CDfender's polycarbonate film protects all CD formats, including audio and multimedia, from surface-scratch damage. It can also repair scratched CDs.

Its major selling point is the polycarbonate film, which has the same properties as the CDs it protects. This means a CD player's laser can read the CD through the protective film without interruption, claims Virgin. A pack of five covers costs £5.99.



Virgin also announced at the show that it will distribute two new types of CDR audio disks. Virgin CDR Recordable is designed for 'one off' recording and costs around £4 per disc; while Virgin CDR-W Rewritable can be recorded on many times, like audio tape, and costs about £18.

VIRGIN EUROMAGNETICS, 01293 776 252

XAOS SAVINGS

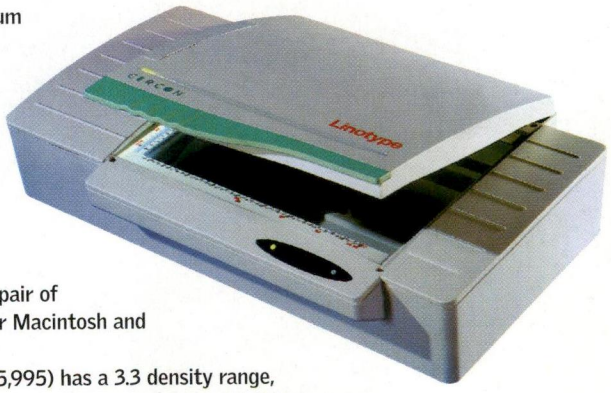
Total Xaos, a £219 collection of popular Adobe Photoshop plug-ins from Xaos Tools, is set to reduce designer debts. UK distributor Digital Toolbox has bundled Paint Alchemy, TypeCaster, Terrazzo and Fresco plug-ins, saving of £200 on individual prices.

Xaos Tools' Paint Alchemy 2 enables users to create digital paint effects within Photoshop. It includes over 100 pre-installed styles such as cubist, granite, oil paint and vortex. TypeCaster allows users to produce 3D type effects. Fonts can be rendered and even animated with textures, bump maps and multiple lights. Terrazzo makes intricate tiled and geometric effects. Users will also receive Fresco, a collection of 80 royalty-free luminescent background images.

DIGITAL TOOLBOX , 0181 282 8383

Scanners at large

Two new high-end flatbed scanners, built for optimum speed and resolution at a mid-range price, are responding to the large-format requirements of professional printers and publishers.

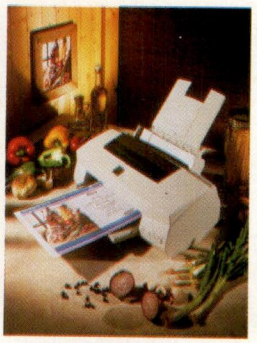


Linotype's LinoColor Circon A3 scanner (UK price to be set this summer) works at three resolutions, including a maximum of 2,400-x-2,400 pixels per inch (ppi), and offers enlargements up to 1,200 per cent. Featuring a 3.7 density range, support for transparencies, and the capacity to separate scanned images directly into CMYK, the Circon also includes a pair of options for colour-management software: VisuaLab for Macintosh and ColorFactory Pro for Windows.

Agfa's DuoScan T2000 XL 11-x-17-inch scanner (£5,995) has a 3.3 density range, a separate bed for transparencies, and two resolutions, including a maximum of 2,000-x-2,000 ppi. Batch-scanning capabilities, along with colour-management tools and multiple scanning preview options, improve high-volume scanning workflows. Compatible with Mac and Windows 3.1, 95, and NT.

DIREKTEC, 01494 471 100, www.linocolor.com **AGFA, 0181 231 4328, www.agfahome.com**

Ink-jet splash out



Epson has followed up it surprise "Cromalin beating" 5000 ink-jet series (see page 118) with the launch of three inkies. The 1,440dpi £271 **Stylus Photo 700** offers a six-colour photographic printing, adding light cyan and light magenta to the standard four-colour process inks. It ships with Adobe PhotoDeluxe 2.0.

For £387, the **Stylus Photo EX** (also 1,440dpi resolution with six-colour process) features Epson's improved proprietary Super MicroDot system. The EX includes a bundle comprising Adobe Photoshop LE, Epson PhotoEnhance and enhanced printer drivers that allow watermarking and new layout options.

Speeds of up to 8.5ppm in colour and 9ppm in monochrome make the £319 **Stylus Color 850** top of Epson's A4 product range. It combines fast true-black and colour printer performance and offers a resolution of up to 1,440dpi.

All three ink-jets use Epson's micro-piezo print technology and are Mac and Windows compatible.

Epson also launched a new range of paper media. Epson Photo Papers are designed for digital photographers. Prices start at £5 for 20 sheets of 4-x-6 sheets and £10.99 for 10 sheets of the larger A2 panoramic size.

Specially intended for users of the Stylus Photo 700 is the adhesive backed Photo Sticker paper. It costs £4.19 for 5 sheets.

EPSON, 01442 261 144, www.epson.co.uk

HP's large LaserJet attack

Hewlett-Packard has launched a new line of large-format LaserJets. The **LaserJet 5000** series was unveiled at Seybold Seminars New York 98. Featuring several hardware improvements introduced last year with the LaserJet 4000 series, the 5000 family outputs full-bleed tabloid prints at resolutions of up to 1,200 dpi.

Available now, the 5000 series replaces the LaserJet 4MV. The printers ship in three configurations: The basic model has a street price of £1,239; a network version, the LaserJet 5000N, is available for £1,779; and the top-of-the-line LaserJet 5000GN, which features more RAM and a hard drive, is £2,199.

Based on a new 16-page-per-minute Canon engine, the 5000 series features Adobe PostScript Level 2 emulation that HP licensed from Xionics Document Technologies last year and tweaked for the LaserJet line.

The printers feature HP's Resolution Enhancement Technology, which HP said makes 600-dpi output indistinguishable in most cases from pages printed at 1,200 dpi. At 1,200 dpi, the 5000 series prints at half the rated engine speed, HP said.

The printers can handle a range of media measuring up to 12.25 by 18.5 inches, and they can output full-bleed, tabloid-size pages. Like the LaserJet 4000 series, the 5000 family features HP's speedy, new Enhanced Input/Output (EIO) architecture and Instant-on Fuser, which cuts warm-up time to less than 13 seconds.

The base model ships with 4MB of RAM, expandable to 100MB. The 5000N ships with 8MB of RAM and the 5000GN with 12MB.

The 5000 series has a pair of expansion slots for network interface cards or external hard drives.

In addition to the extra memory and interface card, the 500GN has a 1.4GB hard drive for fonts, forms or spooling print jobs.

The 5000 ships standard with a 100-sheet multipurpose paper tray and a 250-sheet paper tray.

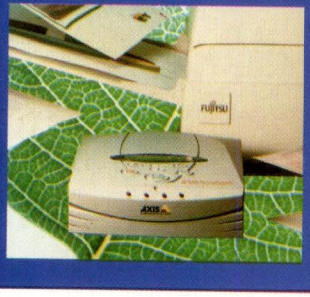
The 5000N and 5000GN include an additional 500-sheet feeder. Hewlett-Packard is also offering a variety of paper-handling options, including a tabloid-size duplexing unit (no UK options' pricing set yet).

HEWLETT-PACKARD, www.hp.cpm

'PAPERLESS OFFICE' SERVER

Japanese efficiency is spreading to the office network, with Fujitsu's new **Axis Network Scan Server** (NSS). The £1,445 NSS was developed to allow organizations to link Fujitsu scanners to a computer network, enabling scanning both of colour and black-&-white documents to a specified file or for emailing.

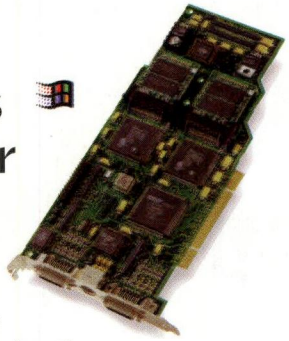
Fujitsu claims the NSS is a cost effective way of providing all networked PC users to a single scanner. The company hopes that delivering scanned images via email will give organizations an alternative to paper for circulating information, lowering photocopying and postal costs. Whether this long-held dream comes to fruition depends on solutions such as Fujistu's NSS.



The Fujitsu Axis NSS works on Windows NT ethernet networks and supports the Fujitsu ScanPartner 10c, ScanPartner 600c, M3093, M3096, and M3097.

FUJITSU, 0181 573 4444

Four eyes are better than one



Ever wanted to spread your work across four monitors? Appian Graphics' **Jeronimo J3** series of accelerator cards (starting at £354) for Windows 95 and NT can stretch to a four-monitor configuration from a single card slot at resolutions up to 3,200-x-1,200 pixels. The included HydraVision software lets users organize and configure the card to function across the monitors.
IMAGO MICRO, 01635 294 300

3D PHOTOSHOP

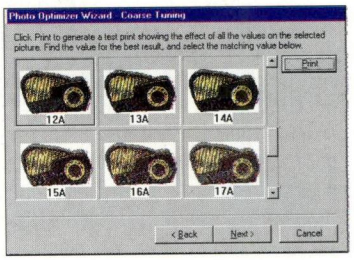
Adobe Photoshop gains the capacity to work in 3D with Plastic Thought's **QuickSpace**. The plug-in lets designers import and manipulate any Apple QuickDraw 3D image without high-end modelling tools. Rotation, angle and position can be modeified within Photoshop. A 300-image 3D clip-art library and LightWorks photo renderer are included in the $129 price-tag.
PLASTIC THOUGHT, 001 403 429 5051
www.plasticthought.com

PagePlus 5 points to Web

An affordable introduction to professional page design for small businesses and desktop publishers, Serif SPC's **Serif PagePlus 5** offers an easy-to-use guided publishing interface.

The latest version (available for Windows 95 and NT) includes Web-design capabilities, 30 design wizards, a clip-art library, and 400 fonts.

The included PhotoOptimizer tool (see right for more details) adjusts colour and greyscale images.
SERIF, 0800 136 932



Use the Photo Optimizer to get the best results for each photo on your particular printer. Pick the best result from the thumbnail sheet – and PagePlus remembers the optimum settings for that image.

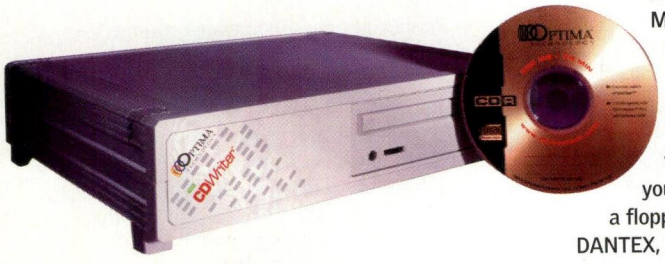
Towering infernos

Blazes, explosions, bomb blasts, and other hot methods of fiery annihilation are now at your fingertips. A pair of cross-platform CD-ROMs from Artbeats, **ReelFire 2** and **ReelExplosions 2**, collect an arsenal of pyrotechnic special effects – including arcing plasma, fireballs, and burning fuses – for animation and video design.

The high-resolution images (up to 3,200-x-3,200 pixels), digitized from 35mm and 16mm film, are available as QuickTime or Targa videos. Many are designed for seamless looping. Act fast because at £329, they're certainly hot.
CADMIUM, 0181 781 1963
ARTBEATS www.artbeats.com

Pack it in!

For storage-hungry design and pre-press sites, Optima Technology offers a CD-rewritable drive and software combination that fits 1.3GB of data on a standard 650MB disc. The £500 **Optima CDWriter** (6x-read, 4x-write, 2x-rewrite, for Mac only), comes bundled with CD-R Access Pro 3.0 recording software, which uses a patented compression technology to squeeze in the extra data in Mac HSF format. The resulting CDs can be read by any Macintosh CD-ROM drive after a one-time installation of a driver extension; the extension is automatically included on the CD. The software can also write standard CD-R and CD-RW discs, and it uses packet-writing for true drag-&-drop file copying, so you can drag files to a CD just as you would to a floppy disk.
DANTEX, 01274 777 777



PREVIEW: Macromedia's new-media Photoshop (sorry, Adobe...)

Fireworks beta

PUBLISHER: Macromedia, **www.macromedia.com**
EXPECTED PRICE: £239
AVAILABILITY: June 1988

Digit

HITS: Excellent tool for user interface design; all content re-editable; good control over special effects; outstanding file-export system.
MISSES: Poor drag-&-drop functionality; text editing via dialogue only; imperfect text rendering; frustrating drawing tools; no style sheets; no Flash import/export.

Many Web designers have a background in print design, and so it comes as second-nature to them to use the same tools for Web projects – such as Illustrator, FreeHand and Photoshop – that they have come to rely on over the years.

However, just because these tools are capable of producing the final GIF and JPEG images used for the Web, doesn't mean that they have been built with the specific needs of Web designers in mind.

Enter Fireworks. After an extensive consultation period with Web companies and multimedia designers, Macromedia has developed this program to take over where Adobe Photoshop falls short; and it's clearly a success. Able to handle animation, re-editable interface elements, fine-tuned GIF and JPEG exports, batch processing and special effects, Fireworks certainly plugs huge gaps in Photoshop's functionality.

Living elements

Most elements of a Fireworks image are based around vector descriptions, so they can be edited at any time without degrading quality.

In practice, this means that if a button is the wrong shape or colour, you can just drag it to a new size or apply a new colour to it and Fireworks will re-draw any special effects (such as bevels or drop-shadows) and re-integrate it with the backdrop. This feature alone makes Fireworks ideal for the developmental stages of a user interface, when many elements have to be edited at length to match client requirements.

One of the nicest things about Fireworks is that despite being based on an object model, everything looks like a bitmap – with

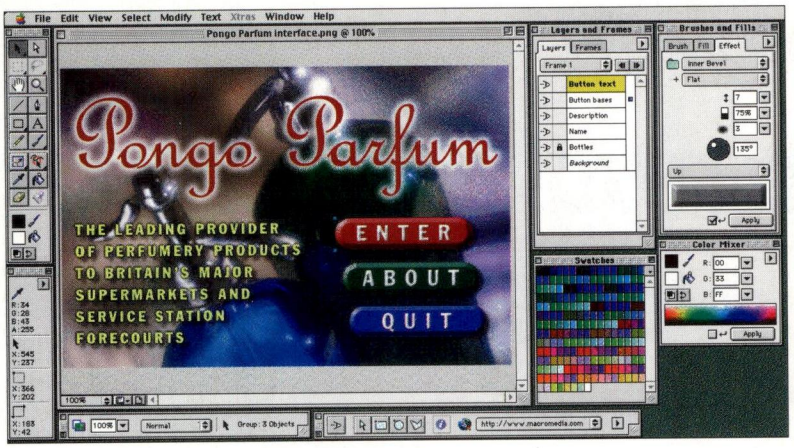
News Flash! Digital cameras get their own operating system

Is your digital camera playing with less than a full deck? If FlashPoint, a Silicon Valley digital-imaging start-up, has its way, cameras could soon have their own intelligence. Last December, FlashPoint released **Digita**, a hardware-independent operating system (OS) for cross-platform imaging devices. Kodak, Minolta, and Sharp have announced licensing agreements, so FlashPoint may become the guiding light for a new breed of intelligent cameras.

Based on Apple's QuickTime Image Capture (IC) technology, Digita severs the tether between computer and camera. It is a software foundation that makes it possible to edit, share, and even print digital images without the aid of a desktop computer.

Digita has two components – the camera's Digita OS and the Digita Desktop application for Macintosh and Windows – each with its own open application programming interface (API) for developers. In either form, the portable OS will provide all normal camera controls, such as focus, exposure, and flash control, along with image-editing capabilities and a common pathway for extension developers.

FlashPoint hopes to provide consumers with a common, simple GUI for all cameras, thereby expanding the digital photography market. Photographers will continue to take pictures as they always have, only now they will be in control of how and when a computer is used – if it's used at all. The company hopes to position the Digita OS as a standard for hardware manufacturers.
FLASHPOINT TECHNOLOGY, www.flashpoint.com



Fireworks has a real chance of toppling Photoshop from its position as the graphics tool of choice for the Web

(Above) Undo the redo With Fireworks, almost all image elements are live, and so can be edited. As a result, special effects do not need to be re-built whenever you want to edit the image; they are rendered automatically as you alter image shapes, text wording and layer hierarchies.

(Left) Size versus quality Fireworks lets you see up to four views of your image, with each one previewing the image quality of a chosen export style, along with a file size and download time over a 28.8Kbps Internet connection.

appropriate transparency, feathering and patterning where desired – and exports that way to GIF or JPEG. One is given the impression of being able to edit bitmaps in the same manner as in Photoshop, but without ever having to suffer a loss in quality unless the element in question is placed into Fireworks as a bitmap in the first place, as is the case with photographs.

The special effects can be applied to any object and include gradient fills, pattern fills, bevelling, embossing, glowing edges and drop shadows. Especially neat is the way that all of this can be applied to text in the same way as to other objects, and so you can re-edit text (or make a separate copy) and change the wording, and all of the same effects will continue to be applied. The most obvious use is for making multiple buttons with different labels in the same style, but it certainly doesn't stop there. The fact that you know you can change all of the text at any time means that you can freely develop a dummy interface with the look and feel of the final project, safe in the knowledge that you can put in the real text later without spending hours re-building all the effects.

Impressive compression

One of Fireworks' main selling points is its file-export interface. This presents the user with up to four previews of their document, showing the image quality at a chosen compression level in JPEG or GIF (or uncompressed previews in most other formats except, bizarrely, Macromedia Flash). When you have decided on the one you like you can export the chosen format – and you can even save the export settings and apply them to a set of images using Fireworks' batch-processing commands.

Not only can you export the images from here, but you can also use ruler guides in the main image to decide where you want the components of your design to be split, and Fireworks will output all of the relevant images and write an appropriate HTML table to re-display them together in a Web page.

Any Fireworks image can have multiple frame states, giving the program the features necessary to produce animated GIFs. Although it falls far short of the control available in Flash or Director, the coupling of the frame-states with Fireworks' general editing tools make it the best GIF animation builder available.

Particularly useful is the way that you can move all your animation elements around within a large canvas and then choose the dimensions of the animation's image area afterwards. It's also good to see that Fireworks correctly builds the animated GIF using only the portions of each frame that change, rather than copping out and simply running together a set of full frame views.

Another string to Fireworks' bow is its ability to write appropriate JavaScript to generate rollover effects within browsers that support image-swapping. Although this is not working fully in the beta software currently on release, it should be no problem for Macromedia to fine-tune this in time for the full release – especially as they have plenty of JavaScript experience with Dreamweaver.

Digit forecast

Let's not mince words: Fireworks fits the needs of Web designers as closely as a freshly unrolled condom. The ability to edit all elements at any time and yet deal with raster output is superb. The animation and rollover-button generation routines will save time and encourage experimentation, and the text control is excellent (although it would be even better if one could edit text directly rather than via a dialogue box, and it's unfortunate that Fireworks mimics the annoying Photoshop error of clipping ascenders and descenders of some typefaces). At the end of all your design work, you have an export system that gives you the best way of trading off image quality for file size.

Macromedia has left its starting blocks impressively with Fireworks, and is in with a real chance of toppling Photoshop from its position as the graphics tool of choice for the Web.

It's not perfect (it doesn't allow drag-&-drop of colours, lacks any snap-to-point controls in the drawing tools, and it would benefit from a style-sheet system to make it easier to standardize effects and text settings), but Fireworks offers plenty of unique tools and will certainly set a new standard for Web graphics on its release in June.

In the meantime, no interface designer should miss the chance to download the public beta and test out this excellent program for themselves.

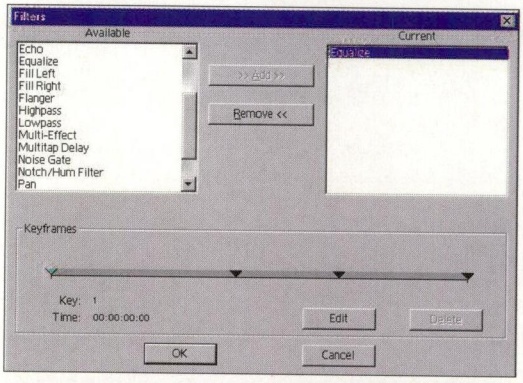
– Ian Winter

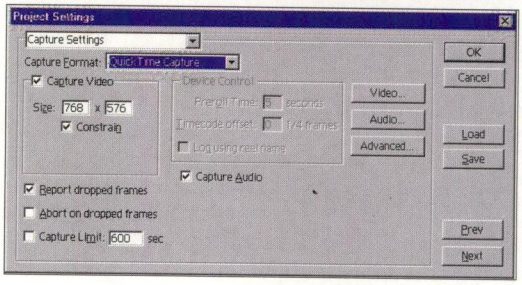
PREVIEW:
Adobe's video revolution
Premiere 5.0 beta

PUBLISHER: Adobe, **www.adobe.com**
EXPECTED PRICE: £550
AVAILABILITY: End of May 1988

Digit

HITS: The whole editing process is much more friendly for long linear edits; list view has 11 searchable database fields; excellent audio processing capabilities; 32 levels of undo and redo; hardware support enhancements
MISSES: The new interface might annoy faithful diehards.





(Top right) Audio
At last, Premiere gets some decent built in audio filters, and a wide selection of them, too. All filters can now be keyframed, instead of just having start and finish parameters.

(Bottom right) Capture
The Capture Settings are now part of the Preset dialogue, so you can load all the important setting in one go.

(Below) Monitor
The Monitor window combines the functions of the Controller, Preview and Clip Edit windows into one dialogue.

It's been over two years coming, but version 5 of Adobe Premiere is finally almost here. With many of the original Premiere team moving to arch rivals Macromedia, the future of the venerable video editor has been in question. But it seems the worries were in vain; Premiere 5 is in late beta and it looks like a cracker.

After the almost insignificant changes of version 4.2 over 4, other than the move to 32-bit, Premiere 5 is a tremendous leap forward. Most obvious is the complete change in the interface. Whereas Premiere has always been famous for its timeline, version 5 downplays the schematic view of the Construction window in favour of an entirely new element: the Monitor. Of course, you can re-arrange the windows to the more usual configuration. But the Monitor window is now intended to be the main locus of activity.

The Monitor combines the features of the old Preview, Controller and clip trimming windows into one box. The combination is a much more conventional two-window setup with one source and one edit preview, which professional video editors will find much more familiar. It mimics the source and record monitors of a linear video editing system, which is what most higher end non-linear systems such as Avid also take as their cue.

In fact, the whole editing process is much more friendly for long linear edits. Instead of dragging clips to the Construction window first of all, you're now supposed to drag them to the Source side of the Monitor. Here you trim them to the length you want, before using a button to insert or overlay at the current edit point.

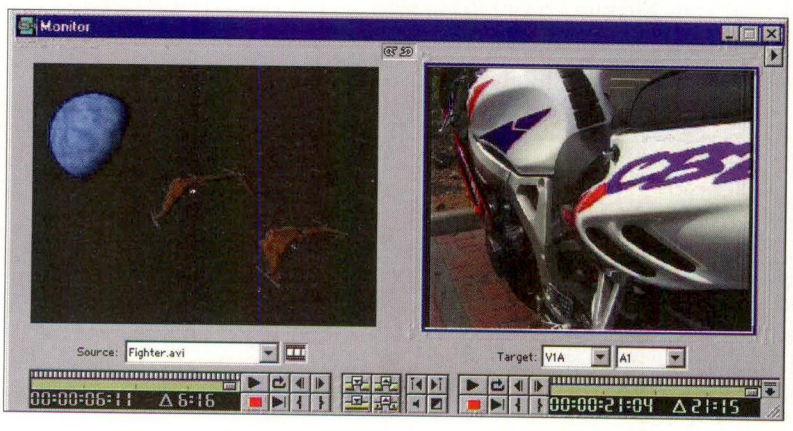
Alternatively, the traditional method of dragging to the timeline can still be employed. Every clip you drag to the source window remains there. The one you're currently working on is chosen by a drop-down menu.

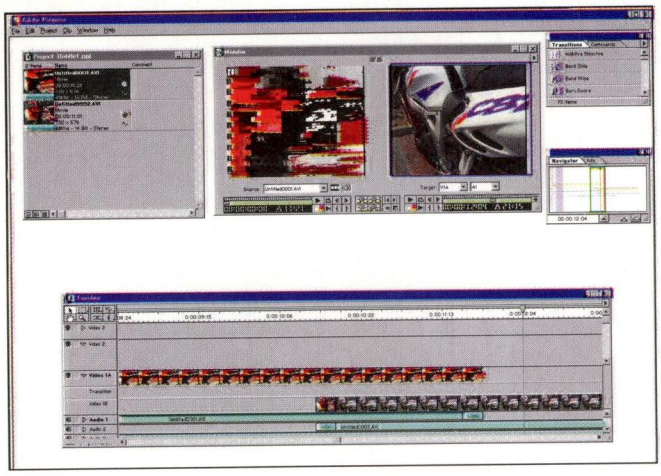
This is much more user-friendly than the Premiere 4 method of opening multiple clip editing windows, which soon gets extremely confusing.

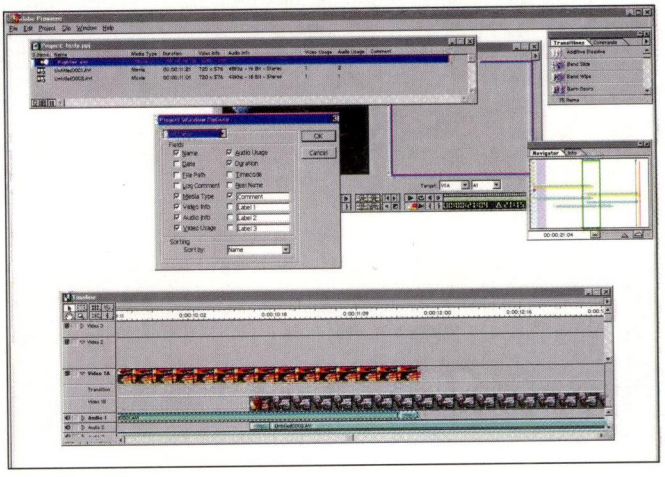
The Project window itself has changed, too. It's now more of a project database, with three distinct modes. Apart from the familiar Thumbnail view, there's also an icon view and list view.

The Thumbnail view now contains four user-definable text fields, which will be helpful for remembering what each clip contains without opening it. More useful still for long projects is the list view. This has 11 database fields, which are searchable with Boolean logic.

The Construction window has also been radically altered for ease of use during long







(Above left) New look
The interface has undergone radical change. Instead of the Construction window, the new Monitor window now takes the fore.

(Above right) New look
The Project window has been expanded into a full project database with three different views. The List view has up to 11 fields which can be turned off and on, with up to four user-definable.

edits. Again, while you can reconfigure the timeline to look similar to version 4, it's actually got as much in common with After Effects, Adobe's popular compositing tool.

To begin with, instead of having video tracks A and B and up to 97 overlay tracks, there are now just 99 tracks of video. The first of these contains an A and B with transitions in between, collapsed into a single track. An arrow is used to hide or show the extra elements.

This, again, will be much easier for those used to linear editing. Like Photoshop 4's Layers palette, individual tracks can be turned off and on temporarily with an eye icon. You can also name all the tracks with your own descriptive titles. For simple edits, you can even choose a preferred transition style and duration so that each new clip is added to the timeline as quickly as possible.

For really long edits, the new Navigator palette complements the Construction window well. This always gives a representation of the entire timeline, from which you can choose a segment to view in more detail via a sliding box.

As upgrades go, this is one of the most audacious interfaces yet seen

Some of the new features of Premiere 5 were long overdue. For example, it's a frequent topic of derision just how bad the audio capabilities of Premiere are compared to even low end competitors.

At last that's no longer the case. Premiere 5 sports many of the audio processing capabilities of stand-alone sound editors.

You get special effect filters for basic tone control, chorus, flange, echo. reverb and delay. But that's not all. If your audio needs a complete makeover, there's a compressor/expander, a seven-band graphic and three band parametric equalizer, high and low pass filters. For fixing poor audio you even get noise gate and hum removal tools. Compared to simple pan and volume controls of version 4, the new upgrade is almost entirely different software. Showing awareness of the rise of FireWire video capture, there's also support for the 32KHz and 48KHz audio used by DV video.

Although the basic video filters and transitions don't appear to have changed much, filters in particular are now much more configurable. Every filter (audio or video) can now be keyframed. Instead of having to make do with a start and a finish value, filter settings can be continuously varied throughout a clip. However, you can't choose how Premiere calculates the value between clips; this will always be linear.

Many other new features add to Premiere 5's huge improvement over 4.2. Movies can now be three hours long without having to resort to editing initialisation files manually. There are now 32 levels of undo and redo, a feature many of Adobe's products have incomprehensibly lacked for far too long.

The project presets have now been made more universal, and include the formerly separate capture settings. So it's possible to load the majority of settings you'll need for a project in one fell swoop.

For increased rendering speed and productivity, hardware support enhancements have been made. Multiple processors are supported on both the Mac and PCs running Windows NT. Under Windows NT, multi-processing is further enhanced by support for multiple threads. This is in addition to the MMX support that was available since version 4.2. Over all of this looms a new Media Abstraction Layer with it's own API, intended to ease the creation of hardware products offering real-time effects.

While nothing has been announced as yet, this could allow plug-ins that make use of cheap Direct 3D or QuickDraw 3D accelerators for real-time effects rendering.

While the beta I was looking at was extremely unstable, it's clear that Premiere 5 was well worth waiting for. It's almost an entirely new piece of software. While the new interface might annoy some faithful diehards, most hardened users will agree that it's not a steep curve to learn the new front end.

And the benefits far outweigh the very limited number of drawbacks. You'll even find most of your third-party plug-ins will still work with version 5. As upgrades go, Premiere 5 is one of the most audacious interface changes yet seen. But underneath it's still the trusty workhorse it always was. Except now it's even more powerful.

– James Morris

CorelDRAW 8

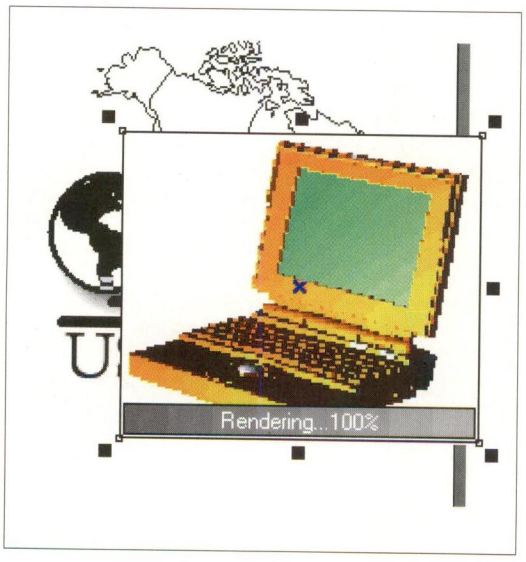
PUBLISHER: Corel, **www.corel.com**
CONTACT: Channel MarketMakers, 01703 812 755
PRICE: £299; upgrade, £199.

Digit CorelDraw is feature packed, with a wide range of import and export types. But this comes at the expense of a bloated installation and cluttered interface.

FreeHand 8

PUBLISHER: Macromedia, **www.macromedia.com**
CONTACT: Computers Unlimited,0181 358 5857
PRICE: £299 (upgrade, £99); Design in Motion Suite, £399 (upgrade to DiM, £199).

Digit FreeHand rules with its clean interface, and Web and animation support. Flash component is getting on a bit, though.



Rotate
When embedding a 3D object into a page, the object can still be adjusted dynamically after import, for example, rotated in 3D space.

With the latest releases of two of the most respected illustration programs coinciding (both leapfrogging Adobe Illustrator to version 8), comparisons between the two are inevitable. With Illustrator 7.0 completing the unholy triumverate of vector-based graphics programs, these programs have all moved away from being purely about creating illustrations for print into more general graphics tools for print, multimedia and the Web.

Both FreeHand and CorelDraw, of course, come feature packed – the core functionality and drawing mechanisms at the heart of both programs is pretty much unchanged.

But, as usual, Corel has gone to town, throwing in everything but the kitchen sink with a full suite of programs that include: a fully featured bitmap image editing program, Photo-Paint 8; and a basic but useful 3D modelling program, CorelDream 3D.

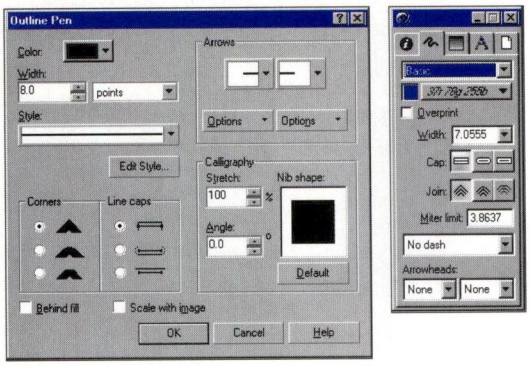
Add to that about 1,000 fonts, 1,000 photos and over 40,000 clip-art images, a decent screen-image and movie-capture program, a tracing utility including OCR support, a scanning utility and a font management tool (Bitstream Font Navigator 3.0), and you'll see why it comes on 3 three CDs and the manuals are all over 1 inch thick.

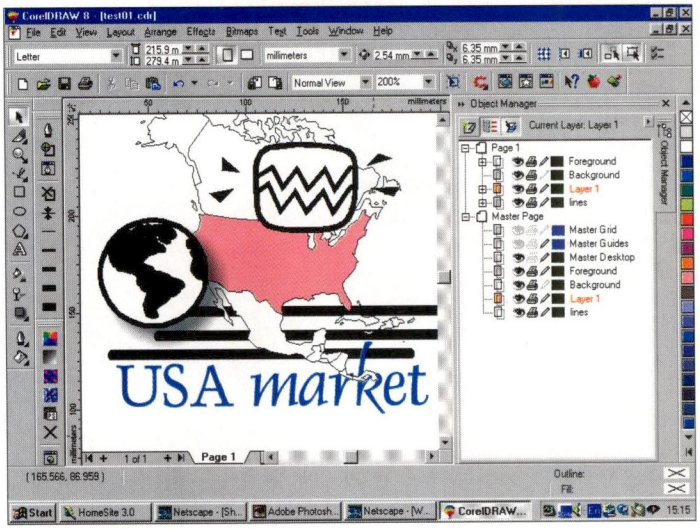
FreeHand seems leaner and more stripped down, though it does also contain 500 fonts. The Design in Motion suite also bundles the Web-animation tool Flash 2 and an HTML tool InstaHTML, and is certainly worth upgrading or 'crossgrading' to if you intend to be developing graphics for use online.

As an application Macromedia FreeHand 8 is undoubtedly more streamlined too, with its flexible architecture that uses Xtras to add features and functionality. This means that users can customize the program to their particular application, be it technical illustration, Web design, or cartography.

This version of FreeHand is available for both Mac and Windows. CorelDraw is yet to reach version 8 on the Mac, although its arrival date is not too far off.

This streamlining represents itself in a number of other ways – not least of which by its 20MB minimum install compared to Corel's minimum 80MB. The interface too is a lot less cluttered – while Draw 8 fills every side of the monitor with incomprehensible icons, and a bewildering array of floating palettes and toolbars.





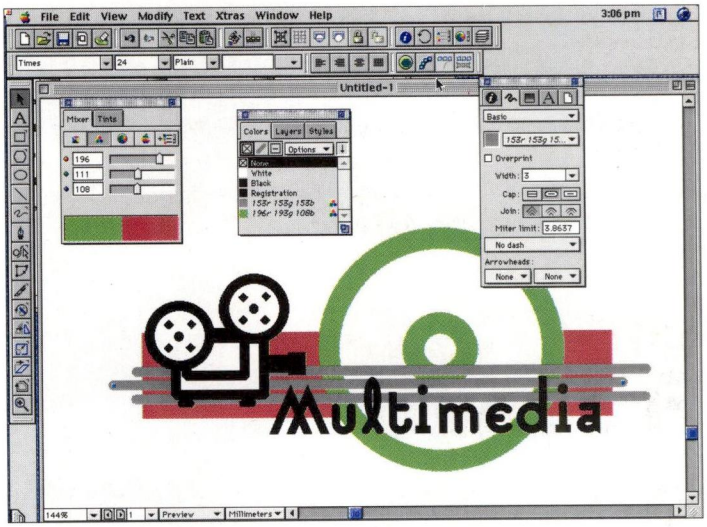
Varied options
Setting the Outline Pen option in CorelDraw 8 (above left). In Draw there are about four different way of setting these options. Whereas in FreeHand (above right) there is only one, using the excellent Object Inspector.

FreeHand's cleaner interface keeps its complexity better hidden. While Corel's number of different ways of performing tasks enables experts to use the method they like best, it does make life confusing for beginners. FreeHand has a much more limited number of ways of working, but this quickly forces you to adapt to it's methodology.

Both CorelDraw 8 and FreeHand 8 have comprehensive text-handling and page-layout abilities. For highly creative pages, using typography as a graphic element, each may well be preferable to a dedicated DTP program like QuarkXPress or Adobe PageMaker. Draw and FreeHand both have the ability to type and edit text in a separate window before applying it to the layout on screen – useful if the layout of the text is complex, or uses difficult-to-read fonts and effects. But with its new proof-reading tools, including a thesaurus, grammar-checker and Type Assist as well as the expected spell-checker, CorelDraw 8 holds a slight advantage over FreeHand, which has a spell-checker but nothing else.

Inevitably, one issue that both programs have given considerable attention to with this release is the Internet, particularly the creation of screen graphics for Web pages and multimedia. Both support RGB and other colour models, including the 216 colour safe 'Web palette' as well as the traditional CMYK process colour and spot colour systems such as Pantone. I especially like the way that you can drag colour 'chips' around in FreeHand, to set stroke and fill colour – to add a colour to the Colour List, even to set the colour that control lines are displayed as in the Layer options.

But the different approaches taken by each program with regard to exporting and displaying graphics for the Web are one of the major differences between the two, with Macromedia continuing to forge new ground with its Shockwave technology. FreeHand now seems to be promoting the Shockwave Flash export as the best way of exporting vector-based graphics for embedding in Web pages,



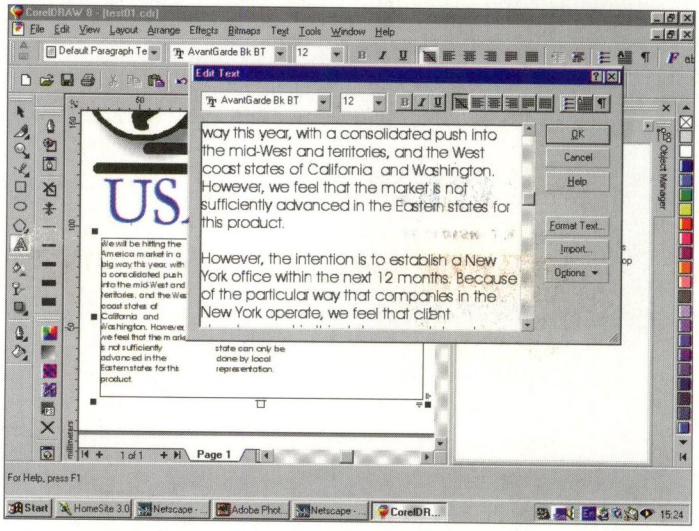
Screen fillers
CorelDraw (top) is littered with icons, squeezing the main drawing window. FreeHand's clean interface (bottom) keeps its power and complexity hidden, freeing up the screen for the main drawing window.

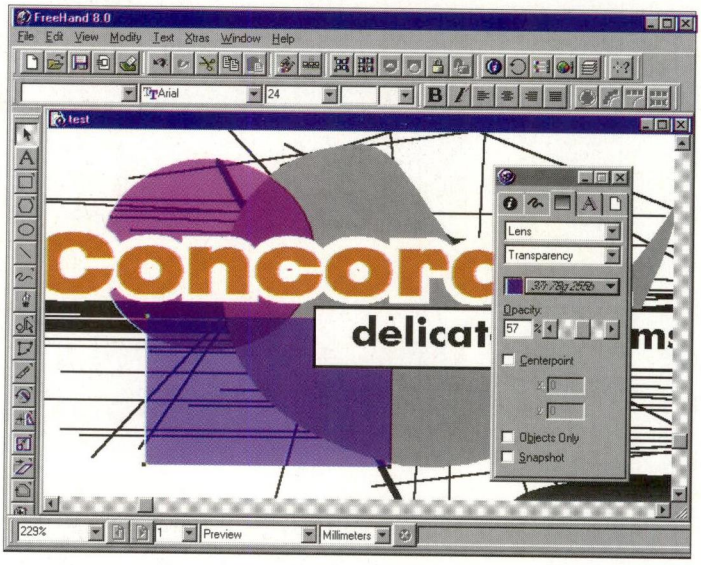
with no mention or support for the old Shockwave FreeHand plug-in.

Yet, this is still head-and-shoulders above what Illustrator and Draw offer when it comes to embedded Web objects. CorelDraw 8 has the ability to export a page as a Java applet, using its Ballista export, but this basically creates a full page JPEG bitmap file – with no ability to zoom in or change quality settings as one can with the Shockwave plug-in. Meanwhile, Illustrator's PDF export abilities are excellent for creating documentation but not really suited to embedding layouts into a Web page. Both Draw 8 and FreeHand also support PDF export. But Draw's wider range of import and export files types is one of its assets.

A fascinating development that FreeHand 8 →

For highly creative pages, using typography as a graphic element, each may be preferable to a dedicated DTP program





heralds is in its application as an animation tool. This is made possible by the ability to set all the objects in a drawing into separate layers (using the Release to Layers Xtra), and then export each layer as a frame as a Shockwave Flash movie. Thus you can create each frame of an animation in a separate layer, and then export as an .SWF to produce the animation.

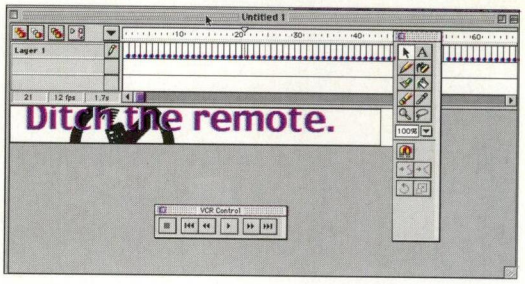
This is exciting stuff, but it could go further. I would like to see the ability to export in native Flash file format, with each layer in FreeHand being exported as a separate layer in Flash – using FreeHand to create only the keyframes. This would have also enabled the Bézier paths that you can create in FreeHand to be used as animation paths in Flash.

Given that Flash doesn't directly support the import of FreeHand files, the integration between FreeHand and Flash is not as good as it could be. Flash is well in need of an overhaul, and ideally I'd like to see it incorporated within FreeHand itself as an Xtra, so that you can use FreeHand as the graphic-creation environment, and Flash as the animation component.

InstaHTML, another part of the FreeHand Design in Motion suite, is an Xtra that allows you to export a FreeHand graphic as an image map, and assign URL's to parts of an image.

(Top) Floating text
Text can be edited in CorelDraw's floating Text Editor window, leaving you free to worry about content and grammar separately from layout and typography.

(Bottom) See through
FreeHand's unique Transparency Lens fill lets you make elements translucent, and let underlying elements show through.



Flash dimming
The integration between FreeHand and Flash 2, part of the Design in Motion suite, could be made better. There is very little editing you can do in Flash to a Shockwave Flash file exported from FreeHand.

This functionality is built in by default in CorelDraw.

A unique feature of Draw is its ability to import 3D objects (in 3D metafile format) and then continue to adjust their properties such as lighting, scale and orientation within itself. It is even possible to rotate the object in three dimensions within the Draw page. This is ideal if you want to incorporate a 3D element within a page layout, though in most instances it will still be preferential to save a rendered image in a 3D modelling image, and import that as a bitmap instead.

Bit players

Both programs support bitmap imports well, another recent advance that all illustration software seem to have improved upon in their quest to become more general page-layout and graphic-design tools. One of the great creative tools that FreeHand boasts is the Transparency Fill, giving you the ability to set the opacity of a layer, thus letting the colours and shapes of underlying layers come through. This is a powerful feature that would otherwise take ages to set appropriate fill and stroke colours, and is unique to FreeHand.

Both programs also have a feature called a Graphic Hose. You can load up the hose by pasting in shapes or images, then set up the parameters such as the range of sizes and the randomness of image placement. You can then paint with these elements, 'spraying' them on to the page in the manner that you have assigned. It's a great way to add leaves to a tree for instance, or fill an area with individual blades of grass.

FreeHand isn't perfect but it is leading the way, leaving Illustrator choking on its dust. While CorelDraw is a fine program, and it finally has a worthy supporting cast in Photo-Paint, Dream 3D, Corel OCR-Trace and Corel Capture, it is still following where FreeHand and Illustrator lead. However, as a complete suite, CorelDraw 8 is pretty much unbeatable for features and value, and its page-layout and text tools are excellent.

But if you've already got the supporting applications, and it's illustration or Web design you're interested in, FreeHand 8 is the one setting the pace and exploring new territory.
– Martin Gittins

→

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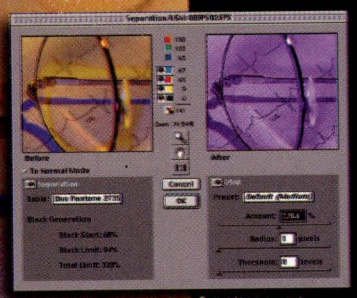

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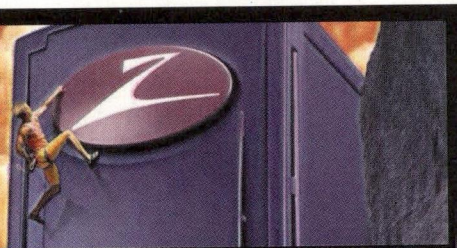

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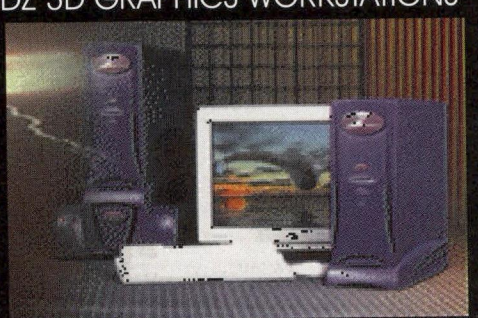

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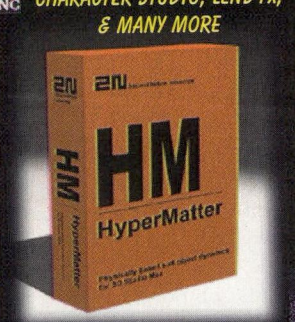

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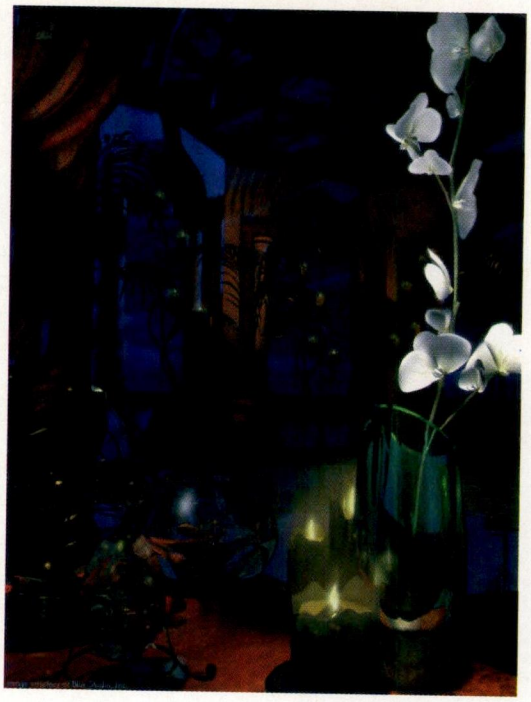
3D Studio Max R2

PUBLISHER: Kinetix, **www.kinetix.com**
CONTACT: 01483 300 077
PRICE: £3,166; £595 upgrade from R1.

Digit

It might not be cheap, but this new version of 3D Studio Max is stuffed full of add-ons and new features including Nurbs support and integrated dynamics.



Gloss
Despite the awesome customizability of the materials interface, 3D Studio Max's raytracing can sometimes have a glossy, almost cartoon-like quality, which is surpassed by other high–end packages like ElectricImage and LightWave.

Kinetix's 3D Studio Max is a modelling, rendering and animation package that can be used to produce anything from film-quality output to games design to Interactive content. Well, so what? Loads of other applications can lay claim to the same things, but 3D Studio Max just happens to be the world's biggest-selling piece of 3D software, with the largest installed base.

The program started life over six years ago, when AutoDesk, the publishers of the world's biggest-selling CAD software, AutoCAD, formed Kinetix to design and develop the original 3D Studio, which was targeted at a more artistic market than AutoDesk's previous customers. 3D Studio Max was specially rewritten to take advantage of the multithreading and multitasking capabilities of Windows NT, as well as overhauling the feature set.

3D Studio Viz is tuned more to the needs of designers working in product visualization, allowing Max to become a professional film and broadcast effects tool and create 'Interactive content titles' – games to you and me.

Plugged in

The new version of the package, Release 2 (R2) has seen over a thousand new features added to it, including a good number of plug-ins that have been rolled into the feature set. From the word go Max has had an extensible plug-in architecture that has allowed it to be expanded via third-party products to suit almost any user's requirements. The after-sales market for plug-ins is at least as great as that for QuarkXPress's XTensions, and shows a similar price range. The news that a lot of plug-ins are now incorporated into the Max feature set will come as a welcome surprise for new purchasers, since a lot of these don't come cheap, but may leave later adopters feeling a little sick. Some of the features that are now standard include a range of particle systems effects, lens flares and raytracing (yes, raytracing was a plug-in in previous versions).

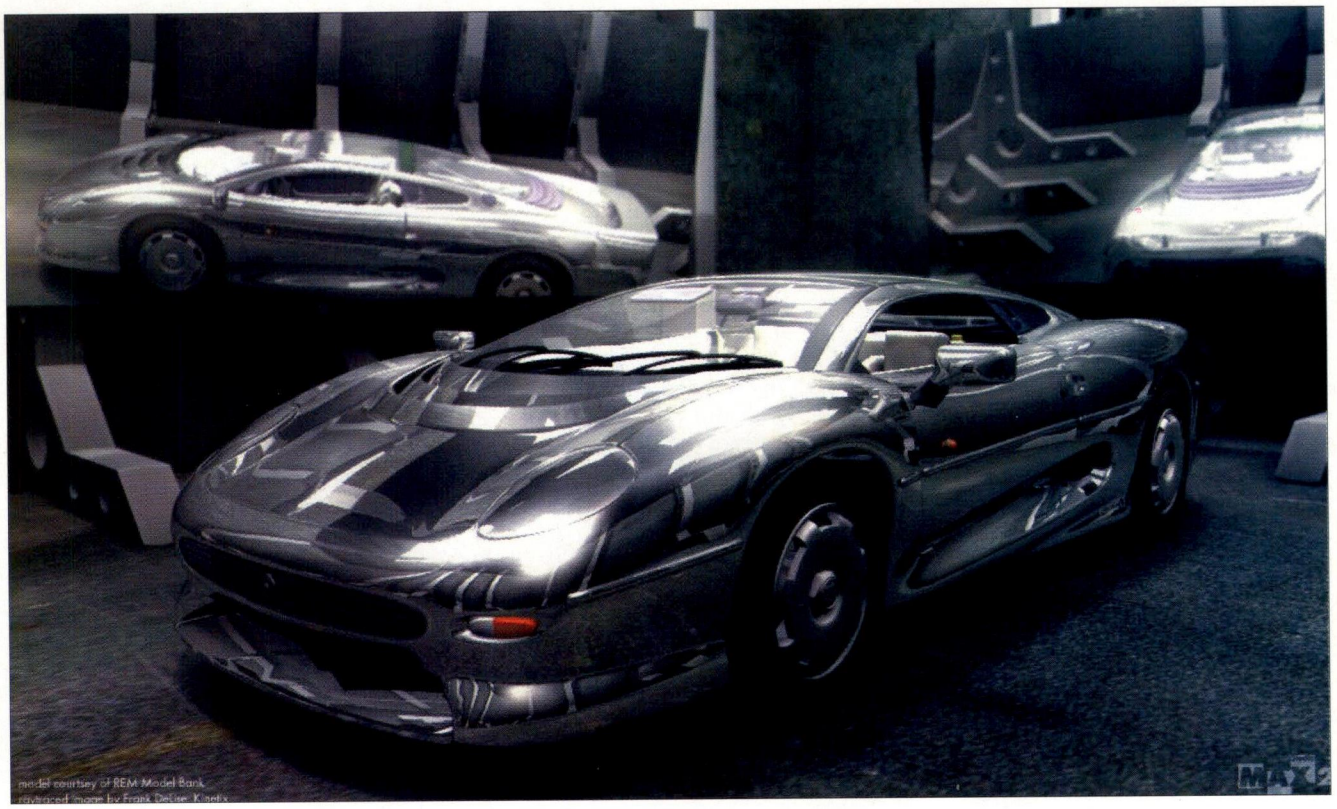
On starting the application the program looks like many other 3D programs on the market – a four-view window setup, a tool bar and a set of stacked palettes. The layout is generally well-thought-out, but elements of the interface, such as the spinner arrows and fields (which are used to continually adjust an objects parameters) can become a little fiddly at screen resolutions higher than 1,280-x-1,024 pixels.

Apart from this, what really shines when you start using 3D Studio Max is the sheer attention to detail in aspects of object creation and manipulation. One very nice touch is that an object's properties can be varied at any time during or after creation, so the number of sides on a simple cylinder, for example, can be constantly varied via the segments spinner. This is useful if more detail is required at particular stages in an animation: an object can be given fewer facets when it is further from the camera, and more as it moves towards the camera. 3D Studio Max will, of course, animate the increasing number of facets as the object approaches, decreasing rendering times over an animation and freeing the animator to concentrate on other things.

Marshalling stacks

Another example of attention to detail – and one which is fundamental to the way that 3D Studio Max works – is the Stack. Every object can have any number of modifiers applied to it, which are stored in that object's stack. Bends, deformations, tapers and so on can be applied, reordered and deleted from a stack at any time in an object's lifetime. This obviates the need for lengthy undo/redo sequences if you decide you don't like a particular effect. The stack and its subtleties can take a little getting used to, but, once mastered it's difficult to go back to other program's ways of doing things.

The interface is also very fast and responsive, providing real-time Gouraud-rendered feedback in any window. Of course, this is going to be a function of your graphics card and processor speed, but on our 233MHz Pentium II system Max was by far the most responsive program in use. Navigating and screen redraw are almost instantaneous even on complex files with texture mapping applied in the preview



windows. This responsiveness is also evident in the animation interface, where NT's multithreading means that an objects' attributes – such as scale, or kinetic properties such as motion paths – can be adjusted on the fly, while the animation plays in the background. The results are instantly signalled back to the user. The advantage that this level of feedback gives in a production environment is difficult to convey on paper.

That should give you an idea of the basic feel of Max, but what's new in R2? Well as mentioned before, a lot of plug-in features are now standard – raytracing for one. While the absence of raytracing in a £3,500 package may seem like a con, many film and broadcast situations don't demand it – indeed it would be overkill to raytrace a whole scene for the sake of a few glasses on a table. To this end, 3D Studio Max now employs an adaptive raytracer that switches to the appropriate algorithm only for areas in a scene that require reflections or refractions. This saves time on overall rendering, and also reduces the need for post-processing. The one drawback is that Max's final rendering quality does have a slight 'glossy' (some would say 'cheesy') quality, which can't compete with the 'reach-out-and-touch' rendering quality of products like ElectricImage or LightWave.

Another fully-featured aspect is the particle system support. Particle systems lend themselves to the production of effects as diverse as smoke, water spouts, even flocking birds and insects. Four main types are offered – Standard (simple Polygons/polyhedra), MetaParticles, which can overlap and coalesce producing liquid effects, Object fragments (for producing exploding or shattering objects) and Instanced Geometry. This latter is particularly powerful, since it allows each particle to be an instance of a model, or even a group, like a swarm of bees or an individual flying saucer. It's easy to see how these could greatly reduce modelling and animation setup times.

Greased lighting
Sometimes, however, 3D Studio Max is capable of producing stunning results like this raytraced image of a Jaguar XJ220. The materials used in this image are actually very simple – the trick is in the lighting, and in this case, we suspect, a certain amount of Photoshop post-processing to achieve the realistic 'bloom' on the highlights.

Knowing nurbs

The big addition to the modelling tools is support for NURBS (Non-Uniform Rational B-Splines). These are now the de facto standard in modelling, since they produce resolution-independent surfaces that don't suffer from the facetting problems of ploygonal meshes. In Max, nurbs can be animated directly in 3D space by click-dragging their control points. Also deform meshes can be applied to nurbs objects to simulate a ball moving through a pipe, or an anaconda swallowing its victim, for instance. Another high-end feature of Max's nurbs is that they are fully relational. If two nurbs surfaces are combined and the joint between them smoothed, MAX can maintain joint and its smoothing even when the two surfaces are moved relative to each other – a boon in character animation.

Perhaps one of the most computationally-intensive features available on any desktop platform, Max now offers support for Integrated Dynamics. This is the ability to calculate the interactions of bodies based on their material properties and the laws of physics. Basically, objects will bounce off, collide with and slide over each other with no additional input from the animator. This is ideal for collisions in film or broadcast, but also has special significance in game design, where multiple collisions in rapid succession seem to be the order of the day. Other systems such as starfields and

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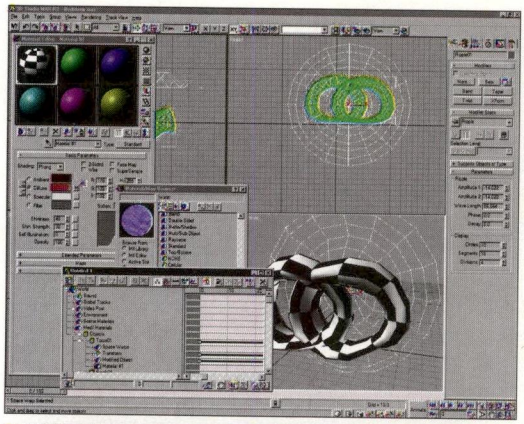

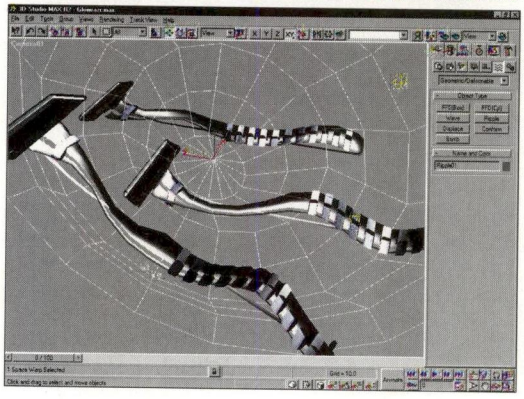

Palettes
3D Studio Max's interface in full flight: On the left is the materials editor with the animation control timeline at bottom centre. The stacked palettes on the right-hand side of the screen contain the tools for all object creation and modification. This is at a 1,280-x-1,024-pixel resolution, with 1,024-x-768 being the minimum you'd want to use. The interface really comes to life with the addition of a second monitor.

Razor
Until you've used it it's difficult to appreciate how responsive 3D Studio Max's interface is. Here are three medium-complexity razor models being distorted in preview in realtime by a SpaceWarp object.

whirlpool galaxies can be simulated by applying the laws of gravity to a group of star objects.

Writing plug-ins has always relied on a knowledge of Max's C++ language. R2's MaxScript uses a more natural syntax to allow users to take control of the program and automate aspects ranging from object creation or animation control. It enables the rapid development of in-house custom solutions.

Of course, in any program there are drawbacks. And in a package that offers such a wide scope, Max's main problem is accessibility. There is so much to learn that things can be daunting at first.

At £3,166, Max is not a particularly cheap piece of software (especially when compared to that other PC stalwart, LightWave, which is less than half that price), but it does have a level of ease-of-use that that program could only dream of achieving. The upgrade price from R1 may also seem a little steep at £595, but there is so much in the new version that we haven't even been able to touch on here, that it begins to look like very good value.

Whatever your needs in 3D (with the exception of architecture and product design) you can be sure that 3D Studio Max offers a solution, or someone is writing a plug-in for it.
– Tim Danaher

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Dreamweaver 1.0

PUBLISHER: Macromedia, **www.macromedia.com**
CONTACT: Computers Unlimited, 0181 358 5857
PRICE: £299.

Digit This powerful new Web-design tool combines a sophisticated text editor with support for the most advanced HTML features.

I've had the same dumb debate with more Web developers than I can count. It goes a lot like the Mac versus PC argument, except this discussion is about using text editors versus WYSIWYG editors for Web design.

The best Web-design programs take an interactive approach to page layout, making Web sites faster, easier, and generally more fun to create, especially if you enjoy design more than programming. But die-hard HTMLers argue that they can code faster by hand, they know more cool tags, and they don't like the code these programs write anyway.

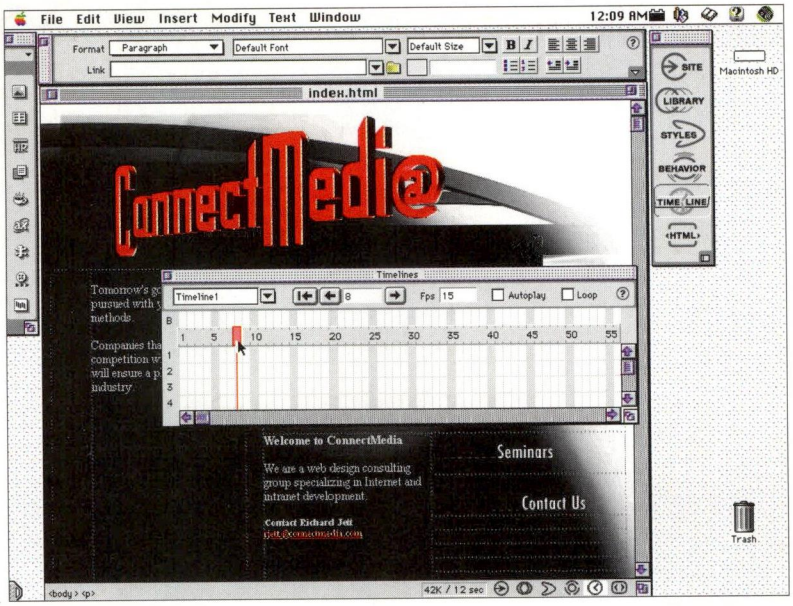
Well, Macromedia's Dreamweaver seems aimed at settling the argument once and for all. Fully embracing the if-you-can't-beat-'em philosophy, Macromedia took its toughest Mac competitor – Bare Bones Software's best-selling BBEdit text editor – and fully integrated it into Dreamweaver. You can even work in both programs at the same time. Make a change in Dreamweaver's graphic editor, and it's instantly reflected in BBEdit. Macromedia also gets bonus points for creating a program that was fully cross-platform the day version 1.0 shipped. (GoLive CyberStudio 2, the other leading contender is Mac only.) If you're using the Windows version of Dreamweaver, the included Allaire HomeSite 3.0 supports sophisticated HTML features such as dynamic HTML (DHTML) and Cascading Style Sheets.

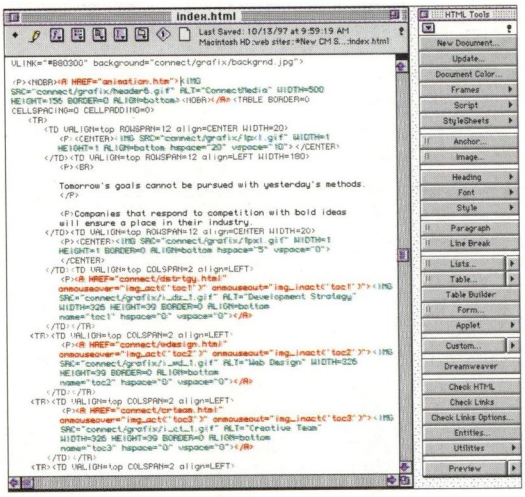
You want to work in the raw HTML code instead of a WYSIWYG editor? You think you can write code faster with BBEdit? Go for it. With Dreamweaver you can have the best of both worlds, albeit for a price.

Other WYSIWYG editors, such as Microsoft FrontPage 98 and CyberStudio 2, include a basic text editor no more sophisticated than SimpleText (on the Mac) or Notepad (on Windows systems).

No code breaker

The Macromedia team has also addressed the biggest complaint I've heard about WYSIWYG editors. You're gonna love this: Dreamweaver promises never to alter your existing HTML code, no matter what tags you use. That's a promise no other graphic editor on the market can make. Some HTML editors, such as Adobe PageMill, have such strict rules about how HTML should appear that they automatically change HTML tags even when the code is perfectly correct. This not only can be infuriating, but it also makes the use of such authoring





tools altogether impossible for some Web designers. Other editors, such as NetObjects Fusion, create such complex code to achieve control of the design that they can dramatically alter your HTML code and make it extremely difficult to edit in a text editor.

If respect for your code isn't enough to make you run right out and buy Dreamweaver, maybe its support for the most up-to-date HTML tags will be. The advent of layers, DHTML, and JavaScript – all supported by Dreamweaver – make creating Web pages much too complex to write the code manually. These new HTML wonders provide greater design control than you've ever seen on the Web before, but they make your HTML look more like programming code than a markup language.

Dreamweaver is more multimedia oriented than its competition. It is the only Web-design tool that includes a timeline for developing animations. Its Director-style score allows you to create animations with dynamic HTML. You will also find a library of JavaScript behaviours that you can apply to Web-page elements to create rollover effects, trigger sound files, and invoke a variety of other actions.

To keep Dreamweaver from becoming quickly outdated (since Web years are like dog years), Macromedia makes it possible to add new behaviours to the library, and the company promises that you'll be able to download new JavaScript applets from its Web site.

Macromedia has designed (and priced) this product for professionals. (The company also recommends that you give Dreamweaver nearly 18MB of RAM.) The program has an intuitive interface, but if you're new to Web design, you may find the learning curve (as well as the price) to be a little steep. A better bet might be Claris Home Page or Symantec Visual Page, which work more like word processors and are easier to use though not as rich in features.

As a site-management tool, Dreamweaver hasn't begun to spread its wings. There is no way to automatically fix broken links, and the option for making sitewide changes is limited because the program can't adjust links.

(Above left) Dynamism
Dreamweaver's HTML editor is the only one with a timeline that lets you create navigations using dynamic HTML.

(Above right) Code 1
Integration with BBEdit is a real bonus.

Macromedia promises to add these features in the next version, but if link management is crucial to you, you'll find that either FrontPage 98 or CyberStudio 2 will serve you better.

When it comes to pure site design, however, Dreamweaver has jumped to the head of the class and raised the standard in the Web-design market, and it's only at version 1. If Macromedia keeps the momentum going, Dreamweaver will be the clear leader among professional Web-design tools for some time to come.

– Janine Warner

miroVideo DV300

PUBLISHER: Pinnacle, **www.pinnacle.com**
CONTACT: 01895 424200
PRICE: £799.

Digit

More expensive than the DPS Spark or Radius MotoDV, but much more fully featured. The DV300 makes editing from a digital camcorder a cinch.

Specifications
Two external and one internal FireWire connections; Adaptec 2940UW SCSI with one internal and one external connector; DV Tools device control software; Premiere 4.2LE; miroInstant Video timeline playbackplug-in.

FireWire capture cards have the potential to revolutionize desktop video editing. Until recently, though, you'd have had to spend at least £2,000 for a fully featured adaptor. The other hitch is that virtually all European camcorders are sold with FireWire input disabled for import tax reasons. Now, however, the DV300 from Pinnacle promises to bring you all the features you need for editing DVC footage from start to finish.

The DV300 is based on Adaptec's AHA-8945. The hardware consists of a FireWire controller card with two external and one internal connector, plus Wide Ultra SCSI on board. So you can hook up your AV disks and camcorder to the same device and save a PCI slot. Drivers for the PC version of the DV300 are included for Windows 95 and NT. Under Windows 95, the

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card is detected and drivers installed automatically. With Windows NT, you have to install the software manually.

Under Windows 95 or NT, the DV300 behaves in almost exactly the same way. The main DV Tools software is used for device control and batch capture. It's cleverest feature is the ability to scan a DV tape looking for the zero resets, which represent the beginnng of each shot on the tape. The scan captures thumbnails of the first frame of each clip and builds them into a library for the tape. You can then drag the clips you want to a rudimentary timeline, and trim the in and out points as required. DV Tools then batch captures them in succession. If your hard disk drops some frames, DV Tools will spot this and re-capture the dropped frames, slotting them in where they should have been. You could use virtually any disk for capturing, but one capable of at least 5MB per second is necessary for playback free of dropped frames

The DV Tools timeline acts as a rough edit. Each clip is numbered sequentially after capture, avoiding the necessity of hunting through your clips for the next one you want. For long projects, the DV300 comes with an Adobe Premiere plug-in called miro Instant Video. This allows edits to be played directly from the timeline. miro Instant Video takes advantage of FireWire device control by being able to trigger recording on the DVC deck in sync with Premiere timeline playback. These are all the features you need for projects anywhere from 30 seconds to one hour forty minutes, the maximum of miro Instant Video.

Of course, in order to record back to tape you'll need a camcorder that has FireWire input. Sony owners at least have a widening selection of devices for turning on the FireWire interface, albeit negating any warranty. I used something called a Widget (£399, see **www.datavision.co.uk** or call 01908 663675) to turn on my VX700. I was then able to record DV to the camcorder, and even use the camcorder's video DAC to view the output on an external monitor.

However, the DV300 is missing a few features for the more broadcast oriented user. The most important of these is that DV Tools does not work from within Premiere. So you can't use Premiere's ability to create Edit Decision Lists (EDLs) for use with a full on-line suite. DV Tools can't output its batch capture lists, either. This is only of importance for those wishing to turn domestic camcorder footage into something broadcastable, but it does stop the DV300 from truly spanning the gap between amateur and professional.

Apart from the inability to control a DV camcorder and batch capture within Premiere, the DV300 is a great solution for editing DVC footage. At £799, it's more expensive than the DPS Spark and Radius MotoDV. But the utility software is much better, and you get a high quality SCSI adaptor as part of the bundle. For multimedia or corporate video work, the DV300 offers an unprecedented set of features for streamlining the edit from capture to output.

– James Morris

FingerType

PUBLISHER: A Lowly Apprentice, **www.alap.com**
CONTACT: XChange 0171 637 2966
PRICE: £79.

Digit This remarkable fun XTension puts the interactivity back into a number of common text-formatting tasks.

XPert CharacterStyles

PUBLISHER: A Lowly Apprentice, **www.alap.com**
CONTACT: XChange 0171 637 2966
PRICE: £79 (for XPert Tools, vol. 2, collection).

Digit This flexible formatting utility earns a place in your toolbox.

HX PowerSearch

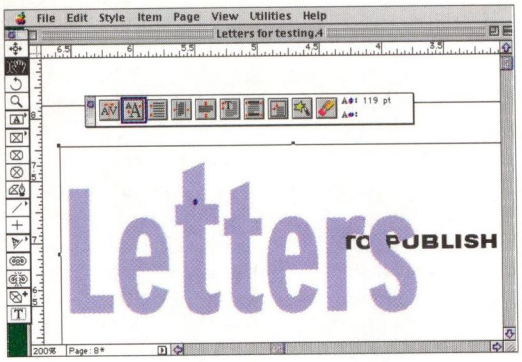
PUBLISHER: HanMac Software, **www.hanmac.com**
CONTACT: XChange 0171 637 2966
PRICE: £149.

Digit With this pricey QuarkXPress add-on, you can search for almost anything and replace it with almost anything else.

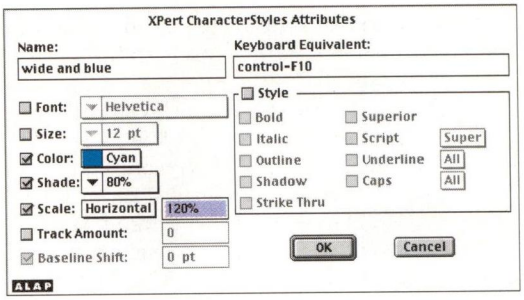
HX ExpressFont

PUBLISHER: HanMac Software, **www.hanmac.com**
CONTACT: XChange 0171 637 2966
PRICE: £69.

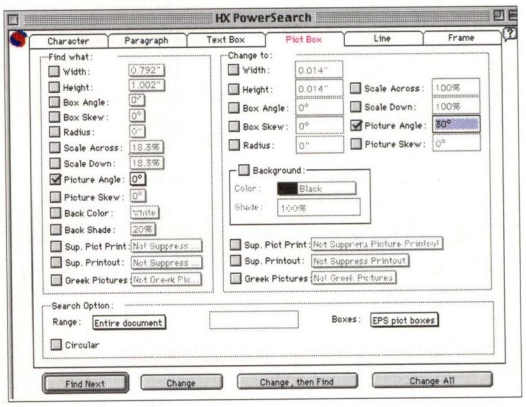
Digit ExpressFont eliminates the tedious scroll through a long font list, though the program could be easier to set up.



(Left) Give it the finger Sliding FingerType's Size and Scale tool changes a letter's point size. Here, the first 't' is being enlarged to the size indicated on the right side of the FingerType palette.



(Top right) Stylish XPert CharaterStyles lets you define a style with any combination of character attributes and later apply those specs by just choosing the style name.



(Bottom right) Searcher HX PowerSearch lets you search for almost any change. Here, the contents of all EPS picture boxes are rotated 30 degrees.

One of the big attractions of QuarkXPress – or one of its drawbacks, if you're one who thinks a program should be comprehensive – is its ability to extend its functionality with XTensions. These add-ons generally do something better than XPress does or do something XPress doesn't do at all.

The release of XPress 4.0 changes the XTension landscape. Version 4 incorporates some features formerly handled by XTensions (character-based style sheets, for example), while continuing to lack others (HTML conversion prominent among them).

Existing XTensions that haven't been made redundant should work with the new XPress; among them are the four utilities reviewed here.

FingerType

The first of the four is FingerType from A Lowly Apprentice Production (ALAP). Billed as "the interactive text tool for QuarkXPress," FingerType is simply the most fun I've had at my desk since Kai's Power Tools and its wild image filters. Imagine changing the kerning of a pair of letters by just sliding them farther apart or closer together or changing the point size by pushing up or down on the character. You've heard the phrase "massaging the text"; with FingerType, it's literally true.

Besides the kerning and type-size tools, FingerType's palette includes equally interactive ones for adjusting the leading, adding a rule above or below a paragraph, inserting a drop cap, changing paragraph margins, and copying specs from one paragraph to another. In every case, you achieve your results by shoving the text into shape.

For instance, click on the kerning tool, place the cursor between the letters you want to affect, and drag right to loosen them or left to tighten. Select the drop-cap tool, click in the paragraph, and drag down to format a drop cap that grows, line by line, as you drag. Choose the leading tool, place the cursor in the middle of the paragraph, and slide up... you get the idea. As you change your specs, a little readout on the right side of the palette gives you feedback in the appropriate units.

The only real drawback to FingerType is that you can apply the spacing and sizing effects only to one character or letter pair at a time. You can't select a range of text and use the kerning tool to increase the tracking overall; nor can you scale more than one letter at a time. If ALAP added multiple-character capability and maybe a horizontal scaling tool, FingerType would be the perfect tool for fitting a headline on the fly. But this is a short wish list for a tool that does so much and is so much fun.

CharacterStyles

ALAP also sells a bundle of XTensions called XPert Tools, which includes one called XPert CharacterStyles. Now, you might think that XPress's new character styles would make this XTension redundant, but you'd be wrong.

With XPress's character styles, you must define every attribute of a character when you create a style. For example, you can't make up a style that's 80 per cent cyan and horizontally scaled to 120 per cent without at the same time specifying a font. (You probably shouldn't make up such a style, of course, but let's just say you wanted to.) So if you wanted to apply those specs to text in several different typefaces, you'd need either to make up a separate character style for each or to apply the spec instance by instance.

Not so with XPert CharacterStyles. Not only can you select from all the possible character traits but you can also check whether a particular trait is part of the style. This means that you can set up a style that specifies only colour and scaling and apply just those attributes to selected text.

XPert CharacterStyles is just one of the components of XPert Tools, volume 2. As was the case with volume 1, some of the included XTensions seem more valuable than others.

Besides CharacterStyles, I liked XPert Pilot, which displays a small palette with navigational tools for getting around your document quickly, and XPert Greeking,

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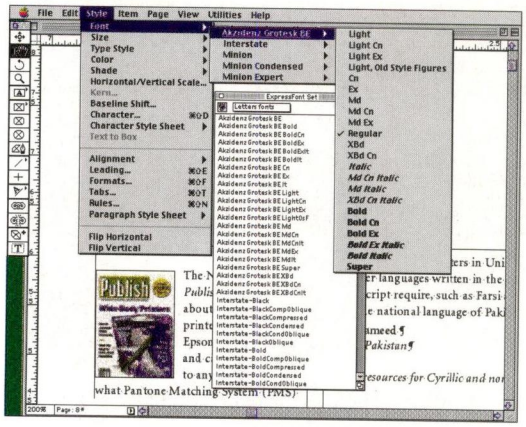


(Left) My type
HX ExpressFont will let you create a set of fonts for display in XPress. From then on, the ExpressFont palette and XPress's own font menus display only those fonts.

which lets you grey out (greek) pictures on an individual basis rather than documentwide.

ALAP is planning a maintenance upgrade for the XPert Tools suite that will ensure smooth operation with XPress 4.0. An enhanced version will contain tools specifically designed or revised for the new version of XPress.

PowerSearch

Now we come to HanMac Software's HX PowerSearch. This XTension lets you search for just about any element of an XPress document, by just about any criterion, and change almost anything you want.

You could search for all that ugly extrawide cyan text we created above and change it to something more reasonable; you could search for all your two-column text boxes and make them one-column boxes with blue backgrounds; you could search for all the picture boxes that contain EPS files and rotate them 30 degrees.

If you're just doing a standard search-and-replace of a text string, HX PowerSearch still has one big advantage over the standard QuarkXPress: the check box marked "circular." With this box checked, your search will start over at the beginning of a story rather than stopping at the end.

Besides the occasional mix-up in search criteria, the main drawback to the utility is its price. The circular search, combined with the rest of the character-search options, is worth half the price of the XTension. You'll have to estimate how often you would use search-and-replace operations to change other elements to decide if it's worth the other half.

ExpressFont

Last on the list is HX ExpressFont, also from HanMac. This XTension speeds up type speccing by limiting your font menu to fonts you select and by displaying a palette of your choices. Once you create a set of fonts for a document and turn ExpressFont on, only those fonts show up in any XPress menu.

It's easy to make a set (or multiple sets): you just select the font names from the full list on the left side of a dialogue box and click to move them to the set list on the right. You can Shift-select to move several fonts at once, making it a quick and easy process. You can change fonts when the HX ExpressFont palette is displayed by clicking on the font name in the list.

Otherwise, use the usual Font command or Measurements palette.

One feature would make the ExpressFont utility a lot better: the ability to automatically add to a set any fonts that have already been used in a document. That way, you could design the XPress document first and create the set list later.

There you have four XTensions that make working with text in XPress – even the new XPress – somewhere between a little and a lot easier. We'll continue to survey the changing XTension landscape and pick out some of the landmarks in upcoming issues.

– Jake Widman

PageMill 3.0

PUBLISHER: Adobe, **www.adobe.com**
CONTACT: 0131 458 6842
PRICE: £79; upgrade from £39.

Digit

Good for those allergic to HTML and looking to develop a basic, small-scale site, but its limitations will be obvious to those with some HTML experience, particularly in terms of page layout.

Home Page 3.0

PUBLISHER: FileMaker, **www.filemaker.com**
CONTACT: FileMaker, 0345 413 060
PRICE: £89.99; upgrade from £49.

Digit

Can produce relatively functional sites with a good selection of 'Assistants'. But maybe too much emphasis on the pre-designed, template approach to Web design.

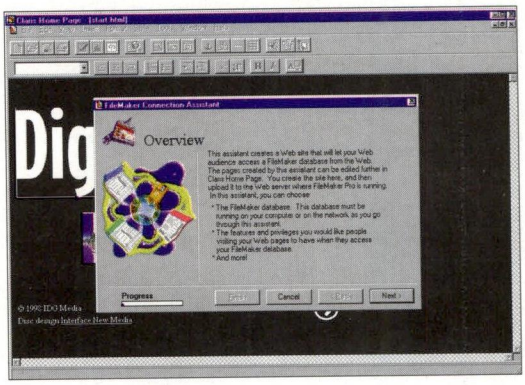
HomeSite 3.0

PUBLISHER: Allaire, www.allaire.com
CONTACT: Unipalm, 01638 569 600
PRICE: £79.99.

Digit

Code-based HTML editors don't come more feature packed, flexible, easy to use, and customizable. If only it could support DHTML...

There's a software-purchasing adage that goes along the lines of – "don't ever, ever, ever buy version 1.0 of anything, ever". Software improves with age – acquiring a reputation (preferably good), third-party support, and a satisfied user base. By version 3.0 of a product you can expect the software to have passed the rigours of in-the-field testing: bugs have been ironed out, the feature set increased, and the user interface improved. With this in mind we take a look at three of the latest HTML-authoring packages available on the PC all hitting that most magic of numbers.



Data link
The FileMaker 4.0 Pro connection assistant lets you create business applications on your site.

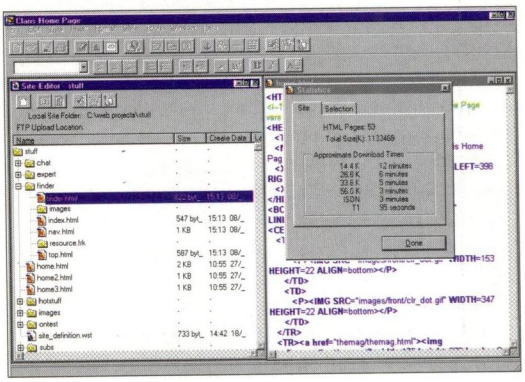
PageMill 3.0

Adobe's graphics and publishing applications are unsurpassed in their field, but its HTML-authoring package PageMill has fallen short of the mark. PageMill has always targeted small-business users with little HTML experience (and little desire to learn). Version 3.0 is no exception. As a WYSIWYG editor, PageMill aims to remove the HTML from HMTL authoring, and let you concentrate on site design and structure.

A new improved drag-&-drop style interface is less clumsy than in previous versions, and beginners will appreciate the simple toolbar controls and word processor-style editing – just type content directly on screen, drag in some images, and you're away. There is an impressive frame-handling feature that allows new frames to be dragged on to the page and manipulated on screen with ease. And the global find-&-replace is also something of a godsend.

One of PageMill's most interesting features is its Pasteboard. This floating window stores items, such as images or text blocks, for later retrieval – great if you use them repeatedly across the site.

Perhaps the major difference between this

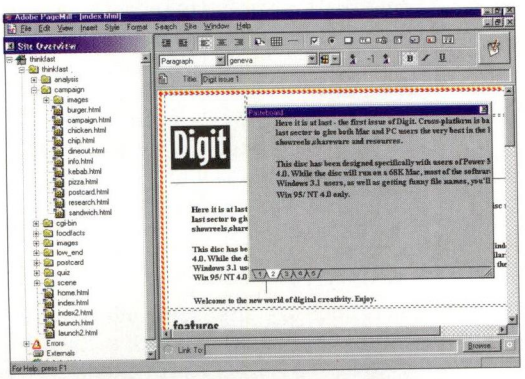


Site access
Good site-analysis tools allow you to identify problems quickly

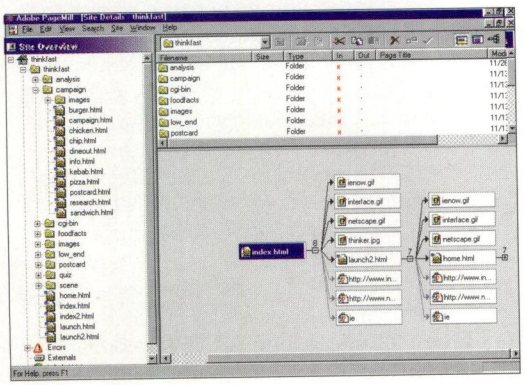
and previous versions is the integration of SiteMill (Adobe's other Web-development tool) style-management tools. These management features are a welcome inclusion, providing users with a means to manage and maintain all the hyperlinks and resources on the site. Remote URL verification, automatic broken-link identification and a neat graphical site overview, all simplify a traditionally fraught area of Web development.

Also included is Photoshop LE 3.05, Acrobat 3.01, more than 10,000 images, sounds, video clips, animations, Java applets (Java is now fully supported), and HTML templates that can have you up and running pretty quickly. You'll also find a few tools for adding functionality such as ready-to-use CGI scripts. By any applied definition, this is a comprehensive package.

If you're looking for a quick fix solution then PageMill may be the answer. You can knock up pages for small-scale Web developments in no time at all, but it does have limited medium- to long-term scope. There are no tools for developing content with Web technologies such as cascading style sheets, scripting, and Dynamic HTML. Indeed only in version 3.0 has Adobe implemented several old features such as support for the Font Face tag and borderless frames, which keeps it at least one step behind the competition.



Dragster
The handy pasteboard allows you to drag-&-drop any content between pages



Nice link
The graphical overview of the site allows you to identify structure and broken links easily

Home Page 3.0

Geared towards novice and intermediate Web builders Claris Home Page 3.0 is a good place to start looking if you want no-frills HTML authoring. Numerous wizard-style guides are designed to hold your hand through all the steps toward creating a site, and within just a few minutes work (yes, minutes) you can have the framework for a small-scale site up and running. Other assistants lead you through

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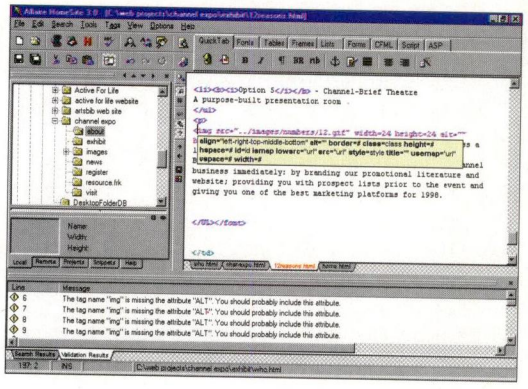
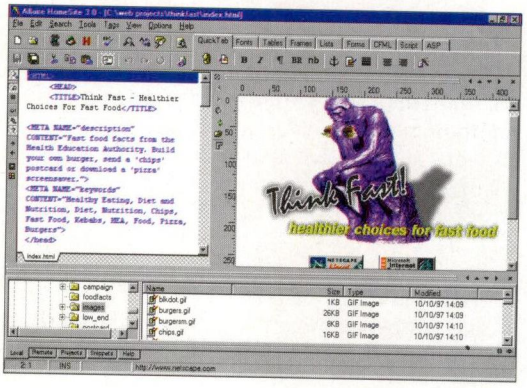


(Left) Tag team
Here you can see the 'tag tips', suggested by HomeSite, that give new users the chance to easily select the right parameters for their HTML tags.



(Right) Your own home
The preview mode allows users to check their site layouts easily. Here you can also see how the screen can easily be arranged to fit user preferences.

page layout, navigation schemes, and help you add in graphics from the 2,500 clip art images and animations. Again, the aim is to have something up and running HTML ASAP.

Pre-designed Web sites do have a tendency to look, well... pre-designed, and as a general rule of thumb I would advice anyone serious about developing a Web presence to try and get to grips with raw HTML code. However, I was pleasantly surprised that the 'Assistants' in Home Page can be used to create quite feature-rich sites quickly and easily.

Home Page 3.0 also acts as a FileMaker Connection Assistant, allowing users to create interactive forms that connect directly to FileMaker Pro 4.0 databases and publish them on the Web. This database connectivity has powerful implications for Web business applications, and provides a good introduction to this booming area of development.

As far as actual HTML authoring goes the interface is clean, simple and not overburdened with hundreds of useless features. Users can toggle between WYSIWYG-style editing and more traditional code-based authoring.

Improved site-management features are also a big help. A new Site Editor manages files, checks links, and performs global search and replacement tasks. Home Page 3.0 (along with PageMill 3.0) can even automatically draw together all the images, HTML and other resources that have gone in to creating your site prior to uploading.

Home Page 3.0 is clearly a useful site-building tool, particularly for novice users. The ability to design, publish and manage Web sites quickly and easily, without having to learn HTML or CGI scripting, has great appeal. But it won't take long for a serious Web developer to appreciate the limitations.

HomeSite 3.0

For truly flexible Web design, you can't beat getting right in to the heart of the HTML and that means a code-based HTML editor. This approach has come a long, long way since the days of the humble Notepad and an encyclopaedic knowledge of HTML. Today code-based authoring software can consolidate all of your resources in to a full HTML-development environment, with everything you need at your fingertips. HomeSite 3.0 is just such an application and is at the cutting-edge of this grass roots approach to Web-site design. Beginners needn't be wary about diving in at the deep end. HomeSite has been designed with a broad user base in mind. Its interface and feature set make picking up HTML coding a doddle. HomeSite can auto suggest the parameters and values for the various HTML tags (referred to as tag insight), making them easy to learn and define. If you need to change any parameters in the tag, a right mouse click and you get a series of simple editing windows. This interface is not so much intuitive as clairvoyant.

Beginners will appreciate the many wizards, simplifying basic processes such as creating tables and frames. It's worth pointing out, though, that you can't beat creating the tables yourself; wizards can prove a little too rigid at times. There are also a host of customization features in HomeSite 3.0 to support your way of working and particular needs.

The site-management features of HomeSite 3.0 are also strong with multiple file- and site-wide search-&-replace features, powerful link-verification tool, and in-built HTML syntax-checking application. Some of the management features maybe aren't as simple to understand as the equivalents in Home Page and PageMill where at least you have some graphical representation, but they are still as powerful.

Perhaps the only real disappointment in HomeSite 3.0 – and this is applicable to most HTML-authoring applications – is the limited, or non-existent DHTML support. But whether you are looking to create a few basic pages or a complex full-blown site, you can't beat HomeSite 3.0 for ease-of-use and flexibility.

3.0 of a kind

PageMill and Home Page offer some advantages to novice users – ease of use, bundled software, and pre-designed template features. But the entry-level, hand-holding approach means the software is too rigid for those with some Web-development knowledge. My advice would be to spend a little time learning HTML with HomeSite 3.0. It might take more effort but the results will be disproportionately better. HomeSite 3.0 is the only piece of software that has something for everyone. Beginners can develop sites by just scratching the surface of the feature set, but the software is powerful enough to be considered an entire Web-development environment, and suitable for even medium- to large-scale Web projects.

– Neil Jones

LogoMotion 2.1

PUBLISHER: MetaCreations, **www.metacreations.com**
CONTACT: Computers Unlimited, 0181 358 5857
PRICE: £79.

Digit Easy-to-use, inexpensive tool for the graphic designer or multimedia author who needs occasional animated 3D content, though no OpenGL support.

With the growth of media-rich projects for both the Internet and CD-based multimedia, the requirements for dynamic animated content have also grown. The combination of 3D and animation can give projects an edge and keep users engaged. However, many of the traditional 3D animation tools are too complex for casual use and can be expensive.

LogoMotion was developed to address this emerging market, providing users with a simple set of animation and 3D tools. Version 2.1 is the first LogoMotion upgrade since its acquisition by MetaCreations. It sees developments that, while increasing functionality, still maintain its ease of use.

Version 2.1 builds on 2.0 in a number of areas. LogoMotion is now fully cross-platform compatible, with the Windows and Macintosh versions shipping on the same CD. QuickDraw 3D is fully supported across both platforms in this release, allowing solid-texture-mapped objects to be manipulated in real time.

While QuickDraw 3D is excellent for real-time previewing, it does not produce high-enough quality images for finalized projects. For this a Phong rendering engine is available, supporting realistic lighting including shadows and atmospheric effects such as fog and environment mapping.

Another significant new feature in this release is the introduction of new Spline-form workshops. LogoMotion can now generate 3D geometry from 2D paths by using extrusion and lathing. 2D paths can be created in standard vector-based drawing packages like CorelDraw, Macromedia FreeHand or Adobe Illustrator, saved as EPS files and then imported into LogoMotion or drawn within the workshop environment.

Closed paths can then be extruded by a specified depth while open paths can be lathed around a central axis to form an object.

Basic polygon and Bézier line tools allow most simple shapes to be drawn within LogoMotion while the import features allow items such as company logos to be used as the basis of an animated project.

Text can be extruded in the workshop environment or placed directly into a scene using the text tool. The depth of the text and any bevel style can be adjusted at any point, as can the text itself.

One of LogoMotion's great strengths is the use of drag-&-drop thoughout the program. Surface attributes and textures can be dragged from a scrolling list directly onto an object to apply it.

All the surfaces supplied with the application can be edited and new texture maps can be created using still images or QuickTime movies. Four mapping styles are available for textures, two for lathed objects and two for extruded objects (including text).

They relate to the way the geometry is created. Cylindrical and spherical mapping are available for lathed objects with cubical and straight mapping provided for extruded elements. Surface properties, diffuse shading, specular highlight, reflectivness, and so on, can be controlled using a series of sliders. A preview window shows the effects adjustments have on the rendering of an object.

Drop everything

Drag-&-drop is extended to every aspect of project development with a number of "Stagehands" provided to get you up and running quickly. These are sets of behaviours that control elements within a scene. For example pre-drawn camera and lighting paths are provided. These can be dragged on to a scene without the user needing to ever look at the timeline window. While basic, these Stagehands will meet many users requirements and can be edited if needs be. The animation can be exported in a number of formats including AVI, QuickTime, TIFF, BMP and Photoshop.

LogoMotion is not aimed at high-end 3D users, rather at the graphic designer or multimedia author who needs occasional animated 3D content. For this its perfect, it guides new users through the process of building and animating a scene and the provision of stagehands means you often don't have to do much to get stunning results. The documentation is well written and the best rendering option is suitable for broadcast-quality output.

– Richard Spöhrer

QuickDraw 3D
The texture mapping introduced in LogoMotion 2.0 provides a means to create realistic looking objects, and 2.1's use of QuickDraw 3D speeds up the previewing process.

DeBabelizer Pro 4.5

PUBLISHER: Equilibrium, **www.equilibrium.com**
CONTACT: Computers Unlimited (0181 358 5857)
PRICE: £399

Digit Peerless, if expensive, raster-graphics conversion, with excellent control over indexed-colour palettes, and good automation. But when it edges into Photoshop territory, it is outclassed.

It's very easy to be quickly disappointed by DeBabelizer, simply by making the incorrect assumption that it's an image-editing program in the same vein as Adobe Photoshop. After all, it looks like one at first, and one can perform a selection of image-editing tasks (such as compositing, resizing and rotation) within DeBabelizer with straightforward ease.

However, DeBabelizer was never designed as a competitor to Photoshop, Painter and other more accomplished image editors, but as a post-processor for them. It takes the output from those programs and fine-tunes it for a target platform – primarily on-screen imagery such as multimedia CDs, games and Web sites.

As part of this role, DeBabelizer is also one of the most accomplished raster-file translation engines, able to open and save almost 100 file formats. In fact many users buy it for this feature alone, particularly if they regularly deal with files from 'foreign' platforms.

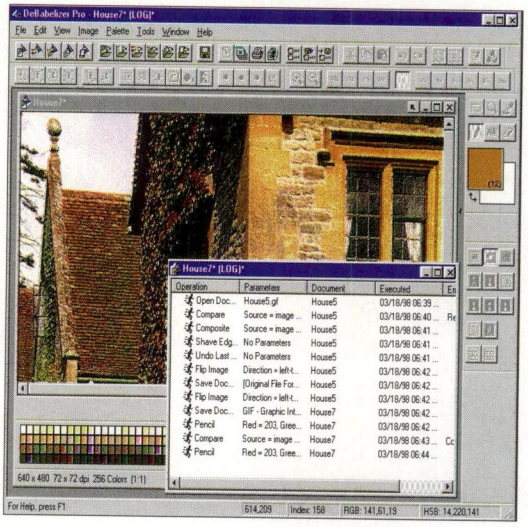
Version 4.5 sees DeBabelizer perfect its main task of boosting your rate of workflow in on-screen graphics production, and it also introduces some fairly weedy creative tools in an attempt to give the program more scope.

Bringing it all together

Although they don't sound too exciting, the new batch-automation features of DeBabelizer are among its greatest assets. It is now possible to set up multiple batch processes to run in succession. Given that one of DeBabelizer's key features is to be able to convert large numbers of files to an identical, common 'SuperPalette', this feature will make it less necessary for users to sit in on the process.

A handy little tool added to version 4.5 is the Pixel Locator. If you're working with an indexed-colour image, this device lets you select one of the colours in the indexed palette and immediately see all of the pixels in the image which use that colour. This is a neat way of judging how important a colour is, and should be invaluable if you need to knock out just a few unimportant colours from a palette in order to reach a target palette-size.

DeBabelizer's ability to deal with scores of file formats is widely known, but even so, Equilibrium has found room to make a major improvement. Version 4.5 now supports direct editing of all frames within animation files (such as animated GIF or AVI files). This works two ways: you can save a multi-frame document to a sequence of files; and you can read any sequence of files into DeBabelizer (using a batch list) and then save the result to AVI or animated GIF. Of course, all of DeBabelizer's palette tools remain available, so you can build clips which stick to a desired colour-set. Other newly-supported file formats include FlashPix, PNG and enhanced support for EPS (although it remains strictly for raster images, not vectors).



Keeping track
As well as a log for all of the operations carried out within an image, DeBabelizer Pro 4.5 keeps a log of all global activities, too, so that even unattended batch processes can be effectively monitored for errors and inconsistencies.

Among the other additions are a Compare command for finding the differences between a batch of images, a Pixel Shift dialogue for sliding the entire image around its canvas (useful for background animations on games, for example), a Composite command for overlaying one image over another, and a Shave/Outline command for cleaning the edges of objects that are to be composited. The latter two additions show DeBabelizer straying into Photoshop territory (especially as the program accepts Photoshop plug-ins), but Adobe needn't worry: the job is done so chaotically that most Photoshop users will find DeBabelizer's compositing tools laughable.

DeBabelizer is a widely respected tool among users who have very exacting requirements, such as building graphics for games or multimedia presentations where the destination platform may put severe restrictions on the number of colours in use, or where the ability to switch colours within a palette is one of the main ways of achieving animated effects.

It's tempting to get the impression that DeBabelizer is a good all-round graphics tool, but that is definitely not the case. Non-specialists will quickly become frustrated with its idiosyncratic interface and huge lists of baffling menu options, and rush straight back to Photoshop's Indexed Colour command.

But for those who find the heavy price of DeBabelizer well worth paying, version 4.5 takes important steps into new areas – although it would be a shame if Equilibrium continues to introduce more 'creative' features at the expense of the program's core capabilities.

– Ian Winter

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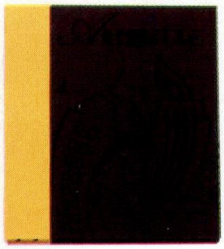

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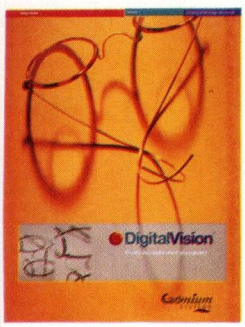

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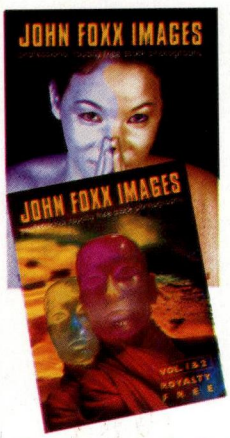

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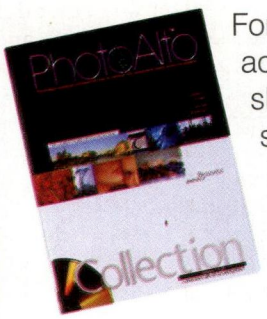

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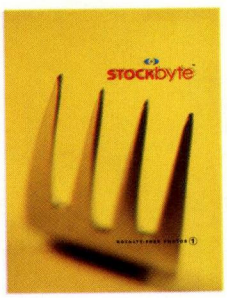

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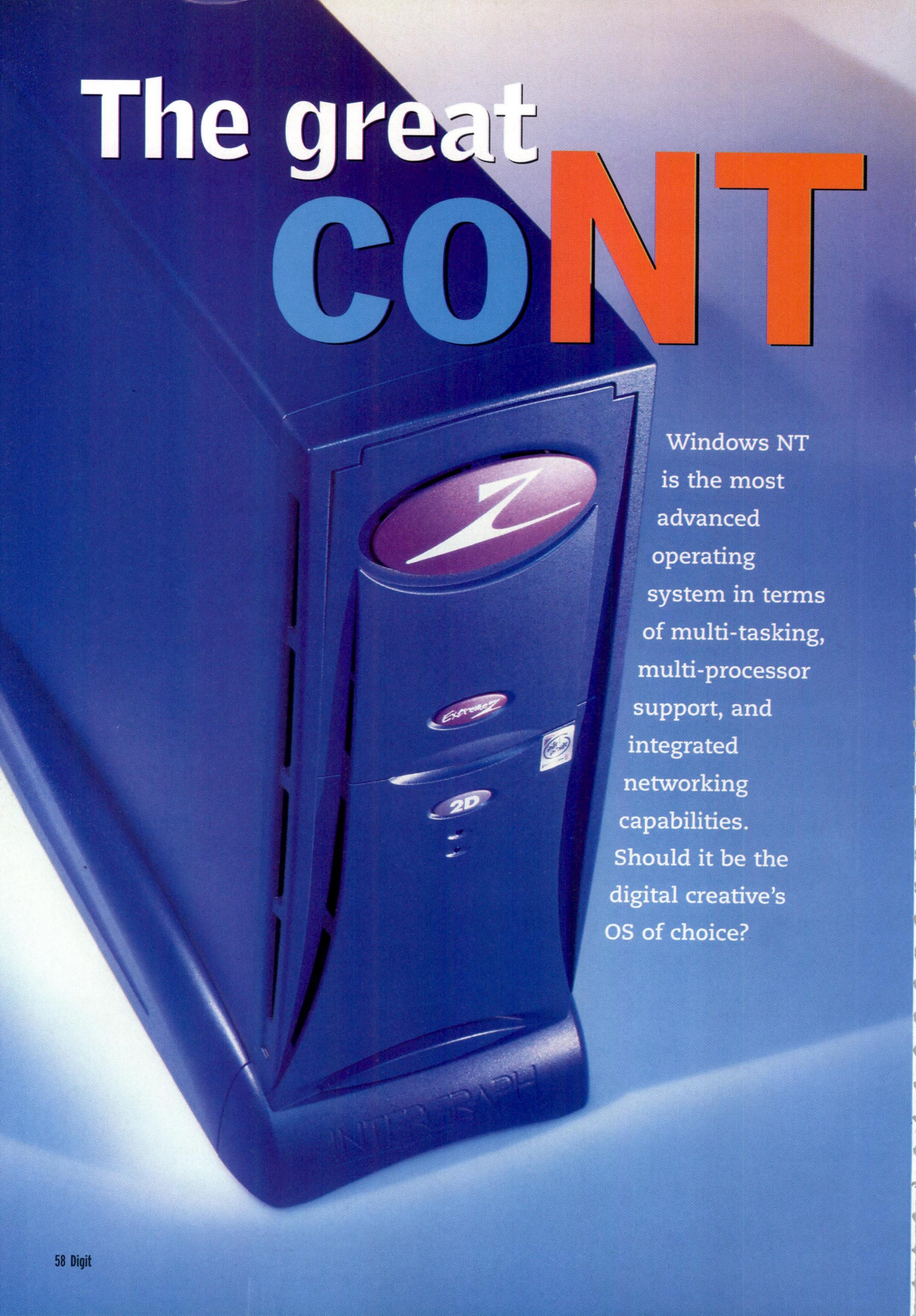

Windows NT is the most advanced operating system in terms of multi-tasking, multi-processor support, and integrated networking capabilities. Should it be the digital creative's OS of choice?

ender

By Peter Worlock

The ability of shrewd marketing – or outrageous hype, according to taste – to sway entire populations is one of the astonishing facets of the computer industry. Yet such is the momentum behind Windows NT that it seems entirely possible that NT could replace the Macintosh OS as the preferred platform in the creative-computing market. Entirely possible, that is, if you believe everything you read and hear.

The facts underlying that message, however, are somewhat slender. To a large extent, the current impetus behind NT as a creative platform is driven by one development: the announcement by several PC makers that they are now specifically targeting creative computer users with NT-based systems. And there's no doubt, the roll-call is impressive. It includes Hewlett-Packard, the leading manufacturer of workstations, in both Unix and NT flavours; as well as Intergraph, a key player in the graphic workstation market; Compaq, the world's premier manufacturer of personal computers; and others, including Siemens-Nixdorf and Digital.

Adding to the Mac-attack are the facts that Macintosh clone maker Umax is also entering the NT workstation market, and that Siemens has appointed DirekTek – better known as a distributor of Macintosh peripherals – to handle its NT systems in the UK.

To that information, we can add one more fact: today, Windows NT is a minority operating system. Its worldwide installed base is between a third and a half of that enjoyed by the Mac OS.

Everything else is a subject for debate, and that is the purpose of this article.

Digit as a publication is platform-agnostic. The aim is to provide you, the creative technologist, with the best information to help you do better work, more productively. To that end, this article considers the merits and drawbacks of each of the major operating systems as a platform for creative computing, whether applications are in publishing, graphic design, multimedia, Web authoring, or video and audio.

(Left) Intergraph may be pretend to be "Mac Friendly" but its ExtremeZ is going for Apple's throat.

Photographs by Patrick Llewellyn Davies

Why NT?

Even allowing for the power of marketing hype, you have to pose the question: why Windows NT, and why now? As noted above, NT is currently among the least popular operating systems in the world, even less widely deployed than the Mac OS, and the merest fraction of the size of the Windows 95 installed base.

According to figures from market researcher Dataquest, the worldwide market for NT workstations last year was likely to be around $2 billion. Compare that with Macintosh sales, which still reached $1.5 billion in the last quarter alone, and with Compaq, which sold around $20 billion-worth of PCs last year.

At the root of the NT phenomena is Microsoft's commitment to the OS. For reasons that aren't entirely clear, the company has been pounding the NT message since the launch of Windows 95.

If Microsoft had its way, it seems likely that NT would become the only available upgrade to existing Windows users. However, so many of Microsoft's customers have shown a staunch reluctance to move to NT that Windows 98 is due to ship sometime late this summer.

Microsoft's own arguments for NT are less than compelling, and the fact that it knows many customers will stick with Windows 95, just as many have refused to leave Windows 3.11, puts it in a difficult position in explaining the issue. Here's a quote from a Microsoft 'White Paper' on its operating systems:

"Windows NT Workstation 4.0 is the most powerful 32-bit desktop operating system with a focus on reliability, security, networking, and performance...

"Windows 95 is the easiest path to a 32-bit desktop operating system with the broadest hardware and application compatibility and lowest system requirements. Windows 98, an evolutionary upgrade to Windows 95, continues to be the easiest path to a 32-bit desktop and makes computing easier, more reliable, faster and fully-integrated with the Internet."

Microsoft's difficulty is encapsulated in that quote: NT is more powerful, more secure,

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THIS IS HARD CORE

AS THAT MOST FAMOUS CHINESE philosopher Confucius once observed, "Only a fool puts his faith in CPU benchmarks." To which that other famous Chinese philosopher Lao-Tse responded, "Show me something better, fat boy."

The one thing that everyone in the NT camp "knows" is that NT systems offer better performance than Windows 95 and Macintosh hardware. On the other hand, Apple is currently having a lot of fun at Intel's expense with US advertising that shows the PowerPC G3 processor outpacing the Intel Pentium II by a handsome margin.

Those ads are based on benchmarks by the highly-respected American publication *Byte*. And those benchmarks are generally regarded as the most reliable in the industry since they exercise almost all aspects of the CPU, rather than concentrating on the academic issues of integer and floating-point maths speeds. They show that a PowerPC G3 chip running at 266MHz is much faster – actually twice as fast in some tasks – than a Pentium II running at 300MHz.

So which is faster, an NT system, or a Macintosh, or even a Windows 95 box? The only honest answer is, "it depends".

A computer is much more than the CPU. System performance is a combination of CPU power, operating system performance, and how efficiently the CPU can communicate with memory and hard disk sub-systems. For creative computing, another major factor is the speed of the graphics system.

Once you allow for those different factors, it becomes extremely difficult – if not impossible – to come up with definitive answers. But if you configure, say, a G3 Power Macintosh and an Intergraph ExtremeZ workstation with the same memory, the same hard disk system, and an accelerated graphics card, there's virtually no difference in performance.

In terms of out-of-the-box experience, the Intergraph wins by a slight but noticeable margin at most creative tasks, but that is largely because Apple – for reasons that remain a mystery – does not ship Macs with an accelerated graphics system. But such cards are available cheaply – around £100-£200.

Intel-based hardware, whether Windows 95- or NT-based, does have certain advantages, however. Chief among these are greater expandability. Most PC systems are able to take memory expansion up to 512MB or 1GB, whereas the Macintosh currently tops out at 384MB. And Apple has decided – for the time being – to restrict Macs to three PCI expansion slots, while most PC systems typically offer five or six slots for add-in cards.

Apple argues, correctly, that the Mac requires fewer add-in cards. A PC might fill some of those slots with a SCSI interface adaptor, a better-than-standard sound card, and digital video boards, but the leading digital video solutions are also a tight squeeze on a three-slot Mac and Apple is under considerable pressure to offer a five- or six-slot system of is own.

The real performance advantage of an NT-based system comes not from the hardware, but from the ability of the operating system to better exploit certain hardware for certain tasks, notably rendering farms in 3D modelling, as discussed in the main text.

a better network citizen. 95 and 98 are easier to use, require less powerful hardware, and provide far greater compatibility with software and third-party peripheral hardware. Microsoft is working hard to unify both feature sets, to produce one OS that offers the best of all possible worlds. But it isn't there yet.

To better understand the differences between NT and 95/98, you have to look at the origins of the operating systems. The earliest versions of Windows were not operating systems at all, but were graphical front-ends to MS-DOS. Windows allowed you to do certain tasks like move and copy files by manipulating icons and menus, rather like the Mac, but the grunt work was done by DOS.

Windows 95 is a kind of hybrid between a true OS and that OS/front-end approach. Certainly the graphical interface is much more tightly integrated with the underlying OS, but there are still some divisions.

NT is a different beast entirely. Originally developed to be IBM's next-generation OS in the early 90's, a rift between Microsoft and IBM led the latter to develop its own version, OS/2, and Microsoft to develop NT – the New Technology operating system. Just as DOS borrowed much from CP/M, an earlier OS, NT borrowed much from Unix. It was designed to provide many of the same features as Unix: multi-tasking, multi-threading, memory-protection, able to exploit multiple CPUs, built-in networking support, and so on.

But, like Unix, the original NT was difficult to use. NT version 4 released in 1996 marked the major breakthrough, when Microsoft married the underlying NT architecture to the Windows 95 interface, creating an OS that was both powerful and (comparatively speaking) easier to use.

NT is more powerful, more secure, a better network citizen

However, there have been other obstacles to NT's widespread adoption. Microsoft specifies 32MB of RAM for NTv4, but the OS itself needs almost all of that. To do any work at all you'll need twice as much, and a full installation of NT Workstation occupies around 512MB of hard disk space. Until RAM and disk prices started falling steeply over the last 18 months, NT was a very expensive option.

While cheap RAM and low-cost multi-gigabyte hard disks have overcome many of the problems with NT, others remain. NTv4 does not support even the limited plug-&-play capabilities of Windows 95. This can make configuring peripheral devices like scanners, printers, additional storage devices and sound cards particularly troublesome. Worse, most manufacturers do not offer the range of driver software for NT that they have for Windows 95.

Software solutions

NT is on much firmer ground when it comes to application software. Although Windows 95 may not have fulfilled Microsoft's vision of a stepping stone to NT from a user's perspective, it has succeeded nicely in allowing software developers to bridge the gap from old, 16-bit Windows applications to the 32-bit software required by NT. (Although most applications developed for 95 are NT-compatible, some –

particularly those that work closely with hardware like disk defragging utilities, back-up software and the like – are not NT-compatible.)

Today, you can buy almost all of the leading creative software applications in NT versions.

The list includes one-time Mac exclusives like QuarkXPress; Adobe's PageMaker, Photoshop, Illustrator, and Premiere; Macromedia's Director, FreeHand, Flash and Dreamweaver; MetaCreations' Bryce, Painter, Poser and Infini-D; and virtually all of the leading Web-creation tools.

Beyond that, NT itself continues to boast a number of market-leading software applications that are not available for the Mac. Notably they include the best 3D modelling and animation software (see below for more details), as well as technical drawing and illustration tools like those from Visio, and the world's best-selling CAD software, AutoDesk's AutoCAD.

More extensive software support remains patchy, particularly in the publishing and graphic design fields. For example, the Mac boasts a far greater library of plug-ins and XTensions for Photoshop and XPress.

3D: NT's real advantage

The one area where Windows NT has a definitive advantage over other operating systems is in 3D modelling and animation. That owes at least something to the intrinsic merits of NT itself, but is also a consequence of the fact that the leading 3D applications are at home on NT. Those leaders are Kinetix 3D Studio MAX (see Reviews), Microsoft's SoftImage, and Lightwave's eponymous package.

When you look at the big feature Hollywood movies, where the special effects teams garner more kudos than the hotshot actors, 3D Studio, SoftImage and Lightwave are the software tools behind the box-office draws. (To be fair, Unix-based software, notably SGI's Alias/Wavefront, also ranks in the top tier.)

Why have those leading applications congregated around NT? In part because the leading makers of NT workstations have also been the major players in Unix-based graphics workstations (even SGI is now developing a range of NT-based systems), but also because high-end 3D modelling and rendering for commercial applications is not a stand-alone application.

The special effects in movies from *Jurassic Park* to *Twister* and *Titanic* may have been created in the same software you can buy and run on your £4,000 NT system today. But the final production was done on dozens – if not hundreds – of CPUs in massive 'rendering farms'.

Consider: if there's 30-minutes of special effects in a movie, at 30 frames per second, and each frame has to be output at very high resolution (no 320-x-240 images here), you're looking at thousands of hours in rendering time. For that kind of application, NT's high-end abilities as a multi-tasking, multi-threaded operating system, with integral support for multiple processors and networking, come into their own.

(Above) Since Apple looks like cutting out its licence to clone Macs, Umax has gone on the offensive with its own NT server, UmaxStation.

Creative questions

Two of the biggest criticisms levelled at NT for creative computing are the lack of support for colour and font management. The recent availability of Adobe Type Manager for NT goes some way towards solving the latter, but colour remains an issue.

To hear some in the NT camp talk, you'd be forgiven for believing that this one has been dealt with, too. But the reality is somewhat different. Microsoft has promised extended colour management as a feature in NT v.5, which is currently in beta testing – but in the first place, version 5 is a long way from shipping, and in the second place, beta testers have reported severe problems with colour.

NT supporters are making great claims for version 5, since it will also add the much-needed plug-&-play support, as well as a new architecture for supporting third-party hardware, which will overcome many of the problems with software drivers.

However, even on Microsoft's official estimates, NTv5 is not going to ship before October, and Steve Balmer (Bill Gates'

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Getting MacFriendly

OF ALL THE MANUFACTURERS offering NT workstations targeted at the existing base of Macintosh users, none is trying so hard as Intergraph, which has developed the MacFriendly programme for marketing and support.

"MacFriendly means that users in graphic arts, pre-press and publishing environments, who now work predominantly on Mac-based desktop machines, can rely on alternative solutions that are easy to use and fully-compatible with Mac systems and media," Intergraph says.

The key feature of the programme is a software bundle that ships with Intergraph's ExtremeZ workstations. It includes utilities that read and write Mac-formatted media, including CD, floppy, Zip and Jaz disks; Adobe Type Manager, and additional configurations of NT's built-in support for AppleTalk networking.

right-hand man at Microsoft) recently hinted that it may be December at the earliest.

Anyone considering the move to NT in the next few months should accept that they will be working with NTv4 as it exists today, probably for the remainder of the year. And that means some remaining difficulties with font management, very poor colour-matching and calibration compared with facilities available on Macintosh, and the on-going problems of configuring peripherals and other hardware.

Just how important those issues are, is a question of considerable debate. But one interesting answer has been given by US research company Gistics, which last year published a major survey of creative computing companies and their employees. There will be those who argue with Gistics' conclusions, but it remains the most detailed study of the question of productivity and creativity on the various flavours of desktop computer. Gistics surveyed more than 30,000 media creators in some 10,000 companies over the past two years and has some controversial findings. They include:

- Of the top 10 per cent of income earners (what Gistics calls the 'best practice' group), two-thirds are Macintosh-based.
- Power Macintosh users earn more than seven times return on investment, compared with just twice the return for NT users.
- Macintosh users gain 304 hours annually in productive, creative work, compared to their Windows NT counterparts.
- Companies and individuals using Macs for creative work are more productive, bill more hours, and generate greater revenues and profits than those using Windows NT.

The key point is that when examined on a per-task basis, the Mac advantage is small, but in an average firm with ten creative workers, that time adds up to considerable financial implications over the course of a year.

Among the key advantages of the Mac, according to Gistics, are easier file management, more time spent on creative work as opposed to computer work (including installation), and many fewer hours needed for training and technical support.

Two other points are worth emphasising. First, the survey shows some considerable differences in findings according to application. For example, the differences are small in activities like digital video, digital photography and animation, but very large in desktop publishing and CD-ROM authoring.

Second, the survey discounts the notion that improved co-operative technologies on Mac and Windows makes it easy to integrate the two platforms in the workplace. Although products that allow each to read the other's files and floppy disks, and to connect various Mac and Windows networks, have made the task easier, Gistics says that the poorest performers in its study are companies with mixed environments, reflecting increased administration costs in time, money and personnel.

Anyone considering the move to NT should examine the report before dismissing the conclusions out of hand. It is available from www.masters.media.apple.com/why_apple/

Although NT shares the graphical interface of 95, there are substantial underlying differences

(Above) Siemens-Nixdorf raises the heat with its Celcius 2000.

The big picture

So what conclusion can be drawn? The first, and it should be obvious, is that no one combination of operating system and hardware provides a perfect solution to all creative applications.

An old maxim in computing used to suggest that when considering solutions you should first choose your applications software, then choose the OS and hardware capable of running your software. In recent years, the success of Windows-based PCs, and the fact that most software is now fully compatible across platforms has led users away from that useful rule of thumb. But it can still pay dividends.

In considering which OS and hardware platform to use, you need to pay attention to issues such as these:

- Windows 95 and the Macintosh are easier to install, configure and learn than NT-based systems.
- NT in its current version lacks plug-&-play, is missing widespread driver support for third-party peripheral hardware, and does not offer a solid colour-management system.
- NT is the most advanced operating system in terms of multi-tasking, multi-processor support, and integrated networking capabilities.
- Although many, if not the majority, of existing PCs are under-specified for NT – which requires at least a Pentium CPU, larger hard drives and more memory – any PC you buy today is NT-capable. Therefore, the obstacles to adopting NT will diminish over time.
- No computer installation should be considered in isolation. Beyond the technology you

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Mac OS

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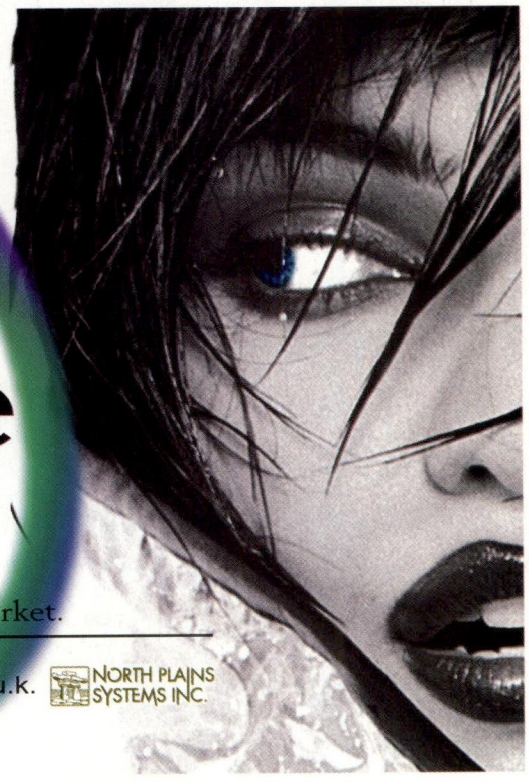

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have to deal in wider issues such as the availability of experienced staff, and support questions (for example, when it comes to getting your creative designs printed, most bureaus have extensive experience in Macintosh systems and limited experience of Windows).

With all that, and more, in mind, here are *Digit's* broad recommendations:

Creative Publishing For magazine designers, and their colleagues in advertising, marketing and other applications where colour and creativity are the key considerations, the Macintosh still rules by a notable margin. Colour management, availability of trained staff, ease-of-use, and training and support are all Mac advantages for this task.

Corporate/technical publishing The differing demands in this application make a Windows solution compelling. Although software applications are nearly identical on all platforms, a key consideration must be integrating the publishing systems with the systems in the wider corporate community, and those are likely to be Windows machines. The superior networking and security of NT make it a strong contender, particularly going forward.

3D modelling and animation For small-scale tasks like generating Web graphics, and illustrations for publishing, there's nothing to choose between solutions based on Mac, Windows 95 or NT. However, for heavyweight applications like corporate training, technical illustration, and tasks where the modelling and animation is the end, rather than a means to an end, NT must be considered the premier solution. The availability of the leading applications, together with experienced staff, and training and support, put the issue beyond doubt.

NT or Mac – which is faster? The only honest answer is, it depends

Audio/music Although Windows 95 is perfectly capable of handling many of the audio tasks required for multimedia, the Mac has a superior range of software, including most of the leading music authoring applications. Sound cards, and the problems of interrupt conflicts and driver support, are a serious obstacle on Windows 95 and NT's lack of plug-&-play rule it out completely.

Video Although the Mac has a current lead, it seems likely that NT will become a significant player in the video market. The greater expandability of Intel systems, together with NT's advantages in multi-processor support and networking, make for more powerful solutions in areas like effects rendering and post-production work.

MAC VS NT – AND VICE VERSA

ALTHOUGH, AS STATED, THE POINT OF this article is not to promote one operating system over another, some direct comparison of the Mac OS and Windows NT is inevitable. For one thing, the Mac remains the premier platform for creative computing; even in a bad year for Apple like 1997, researcher Dataquest reports that of all computers sold for creative computing fully 50 per cent were Macintoshes. Among the worldwide installed base the proportion is even higher.

Also, many of the manufacturers now offering creative NT workstations have specifically targeted Macintosh users, whether in the 'co-opetition' manner of Intergraph (see "MacFriendly Intergraph") or the straight-ahead onslaught of Digital ("Digital's Creation Studio knocks Apple... out of the water," the company said at launch last year.)

If you're a Windows stalwart, you don't have to read this section. Consider it aimed at Macintosh users wavering towards the lure of NT.

Arguments about which OS is easier to learn are entirely academic unless you've never used a computer at all. If you know the Mac you'll have to endure a learning curve, steep in places, when switching. But that is absolutely true for Windows users moving to the Mac. Questions of ease-of-use matter less than the fact that differences exist.

For example, there is less consistency in keyboard shortcuts on Windows, although within cross-platform applications the differences are minor.

A greater difference is the fact that Windows adheres to the DOS convention of identifying file types by a three-letter extension (text files are .txt, TIFF files are .tif, and so on). If you don't adhere to the system you can have problems opening files within appropriate applications. If you attempt to remove the extension from an existing filename, Windows warns that the act may make the file unusable.

Similarly, Windows applications are highly doctrinaire about file naming, which can create some confusion when opening and saving files.

Another major hurdle to most Macintosh users moving to Windows is the fact that you can't manipulate files and folders, viewing and rearranging contents, in anything like the simple manner of the Mac. The nearest Windows approach is to run the Explorer application, which lets you view files in tree hierarchies, but still lacks the full flexibility of the Finder.

Although Windows NT shares the graphical interface of Windows 95, there are substantial underlying differences. For example, NT is designed from the ground up as a network operating system and even though NT Workstation is offered as a single-user OS, it still feels more like Unix. Even as the only user of an NT system you still have to work in terms of accounts and user names and privileges.

This – networkability and security – is one of the feature advantages of NT, but it will very likely feel alien to anyone used to the laisser-faire freedom of the Mac and Windows 95.

Another common criticism levelled at Windows from the Mac camp is the lack of true plug-&-play. Although Windows 95 makes a pretty fair stab at it, NT currently lacks anything like it and installing extra drives, scanners and expansion cards can be troublesome. It is less of an issue if you are buying new systems from scratch since you can choose on the basis of NT support, but those wishing to carry over hardware from existing Mac or Windows 95 installations should be prepared for trouble – or new investment.

A final and substantial obstacle to Mac OS users switching to NT, particularly in the publishing and creative spheres, is the question of typefaces and font libraries. Although there are utilities that will convert Mac typefaces to PC format, that's a breach of most font licences and therefore illegal (not to say ridiculously time-consuming). The only practical solution is to replace your type library, and that's an investment that may cost several thousand pounds.

After that, you'll find that special characters are mapped, and accessed, entirely differently on Windows. For example, to get the copyright symbol © on the Mac you type Option-g. On Windows you type Alt-0169. And if you move a document containing said symbol from one platform to another, it will appear wrong.

Creative solutions: Windows NT workstations and Mac OS hardware

	HEWLETT -PACKARD	COMPAQ	IBM	SIEMENS -NIXDORF	UMAX	INTERGRAPH	APPLE
Range	**Kayak**	**Professional WS**	**IntelliStation**	**Celcius**	**UmaxStation**	**ExtremeZ**	**Power Macintosh**
Model	Kayak XU	6000	M Pro	2000e	6000	2D/3D	G3
Format	Minitower	Minitower	Minitower	Minitower	Minitower	Minitower	Minitower
Operating System	Windows NT 4.0	Windows NT 4.0	Windows NT 4.0	Windows NT 4.0	Windows NT 4.0	Windows NT 4.0	Mac OS 8.1
Processor	Pentium II	Pentium II	Pentium II	Pentium II	Pentium II	Pentium II	PowerPC G3
CPU speed (min)	266MHz	266MHz	233MHz	266Mhz	266MHz	2x300MHz	266MHz
CPU speed (max)	300MHz	333MHz	300MHz	300MHz	300MHz	300MHz	300MHz
Multiprocessing	Option	Option	Option	Option	Option	Yes	No
Max CPUs	Two	Two	Two	Two	Two	Two	One
Supplied RAM	32MB	32MB	32MB	64MB	128MB	64MB	128MB
Maximum RAM	512MB	512MB	512MB	512MB	384MB	512MB	384MB
Drive controller	UltraWide SCSI	Ultra Wide SCSI	ATA-33	Ultra Wide SCSI	Ultra Wide SCSI	Ultra Wide SCSI	Ultra Wide SCSI
Storage supplied	2.1GB	2GB	4.2GB	4GB	4GB	4.3GB	4GB
CD-ROM	24x	16x	24x	24x	24x	24x	24x
Drive bays	7	6	6	5	5	5	3
Expansion slots	6	6	6	6	7	6	3
Graphics card	Matrox Millenium II	Matrox Millenium II	Intergraph Intense3D	Matrox Millenium II	Matrox Millenium II	Matrox Millenium II	Built-in Apple Optional accelerator
VRAM	4MB	4MB	16MB	4MB	4MB	8MB	6MB
Network interface	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T	10/100Base-T
Price (from)	£2,725	£2,795	£2,244	£2,697	£3,500	£3,995	£1,799
Contact	Hewlett-Packard *0990 474 747*	Compaq *0845 270 4222*	IBM *0990 426 426*	DirekTek *01494 471 100*	IMC *01344 871 344*	CW *0171 723 7221*	Apple *0800 607 7660*

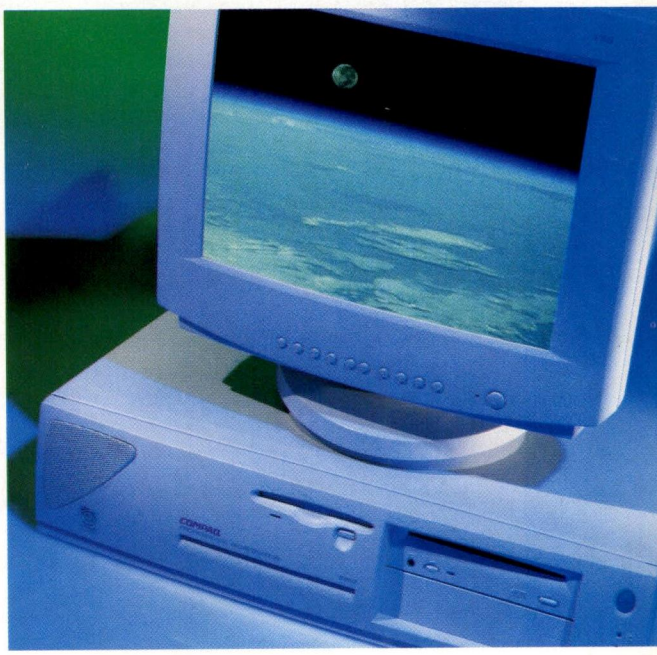
Multimedia/Web authoring In real terms there's little to choose between any of the platforms, although the Mac's superior file-handling and ease of use give it an edge, especially considering the multitude of tools – vector and bitmapped graphics software, animation, audio and authoring applications – required in these tasks. Looking ahead, Microsoft currently appears to be going further than Apple in integrating the Web with the operating system, and such integration will be a key feature of both Windows 98 and NT version 5.0. What that will mean to authors remains to be seen.

Illustration/graphic design As with creative publishing, so here. The Mac still rules, thanks to ease-of-use, advanced features like drag-&-drop of files and graphic elements, and consistency of colour between applications. The superior networking of NT is less applicable in these applications, where authors largely work alone rather than in large workgroups, and the additional complication of installation, set-up and management are actual drawbacks where authors do not have full-time network administrators and IS departments to call on.

In summary, for many creative tasks, the Mac remains an obvious choice, with the real competition coming from Windows 95/98 through lower costs of hardware combined with the availability of all leading creative software applications.

For highly technical tasks in CAD and publishing, and processor-intensive work like 3D modelling and rendering, Windows NT has compelling advantages through multi-processor support and networking. Where a year ago you might have considered a Unix workstation from Sun or SGI, an NT workstation today may be a better choice in terms of investment cost, ease of learning and ease of use.

Looking ahead, NT version 5 will address many of today's concerns about plug-&-play, driver support, and ease of use. But that solution is at least nine months away. ■



(Right) Fresh from its $9.6 billion buyout of Digital, the world's PC market leader Compaq is gung-ho about NT.

By Eric Wilson

Could Apple still sink NT?

During the first four decades of the century, Britannia ruled the waves as Microsoft rules the PC. England had an invincible class of ship called the dreadnought – the NT of naval vessels. They had an awesome array of firepower, as NT has applications. They were robust with the thickest armour, as NT is the strongest of any PC operating system. Yet there are no dreadnoughts left in the world, save a couple of US battleships in mothballs. So you can believe Steve Balmer, Microsoft's executive vice-president and head of sales, when he says Microsoft's power in the marketplace is perceived to be much greater than it really is.

The dreadnought era was wiped out almost overnight by a new generation of ships called aircraft carriers, whose primary weapon, the plane, was completely portable. If a plane's ship sank it just landed somewhere else – perhaps on enemy soil. In the computer world, this portable firepower is called Java and, more importantly in the medium term, "Yellow-Box" applications. They can run on NT but they don't have to. They are equally at home on Apple's planned Rhapsody OS or Sun's Solaris. But both have more counter-measures in store for NT.

Illustration by Andy Baker

While, admittedly, it is hard to think of a major technology that is an original Microsoft idea, there is one Microsoft original that has contributed to its amazing success and expansion of the industry – realistic prices. These led to Windows becoming "the people's desktop" and could make NT "the people's server", too.

But Sun and Apple are not going to fall for the same trick with NT. They are building their aircraft carriers for the price of destroyers. They are migrating to the PC platform to take on NT toe to toe. Rhapsody for Intel will arrive as NT 5.0 ships mid-year and Solaris, on Intel's new Merced processor, will debut next year.

These will match NT's real business appeal – the ability to run on cheap, mass-produced PCs. And, Macintosh users and Sun customers are far more loyal than the NT user-base ever will be. But it is not users or customers who will determine the fate of NT, in this, Microsoft's most serious hour. It is the heart of the industry – the developer community.

If it builds pure Java or Yellow-Box applications instead of coding exclusively to Windows, the genie will be well and truly out of the bottle. Users will be able to leave Windows painlessly, without ditching their applications.

So will they? At the moment, the hype is with Java. But for applications vendors, time to market and application performance is everything and Java is slow on both counts. So Java is a long-term threat, but too immature to cause Microsoft pain right now.

Apple's Rhapsody Yellow-Box technology cannot be dismissed so easily. Building applications in it is fast and the same source code will run more or less at C++ speeds under NT, Windows 95, PC and Mac Rhapsody as well as Mac OS 8.

Unlike Java, Rhapsody's Yellow Box is not a capsule that converts universal instructions injected inside it into specific instructions for the computer system outside. Instead, Yellow Box works like a phono to mini-phono audio jack that you use to plug your Walkman headphones into an amplifier. "Native" instructions written to Yellow-Box specifications are "thunked" through the Yellow-Box software to the OS.

Beta testers say writing object-oriented Yellow-Box programs is a bit like adding an extension on to an existing home. But writing Windows code, they say, is like building a whole house from a pile of bricks and wood – there is much more to do. And regenerating a substantial Yellow-Box application to NT takes a single developer hours or days instead of weeks, months or years.

So Apple appears to have a bulletproof case for breaking the Windows applications monopoly, thereby cracking open the NT franchise. And it cannot be swept away as Microsoft has tried with Netscape. The only downside of Yellow-Box applications is that they are not optimized for network transmission like Java applets – but neither are NT programs.

However, Microsoft still has a battery of potent anti-aircraft missiles in NT's armoury. There are Microsoft's transaction and message queue servers, which make it easy to write big server applications that can be spread over many machines. Hydra, a thin-client technology, extends the life of 486s and lets you run powerful PC applications from palm-sized portables and Web-TV set-top boxes. Then there are Active Server Pages that let you write complex Web applications in a dreadful hurry.

In other words, Microsoft's big defence is to make NT so rich and powerful that you would not want to migrate from it even when you can.

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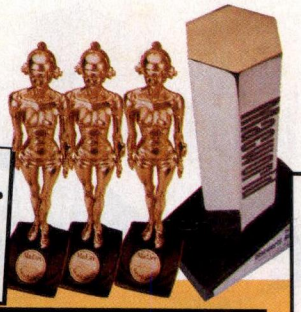

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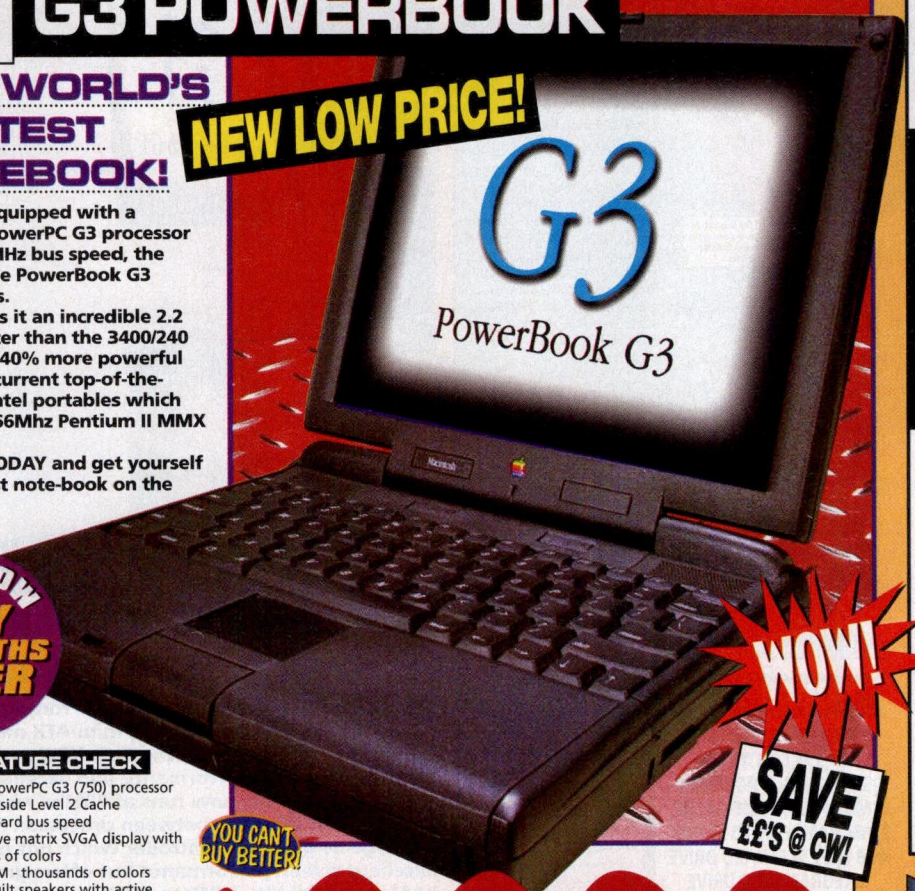

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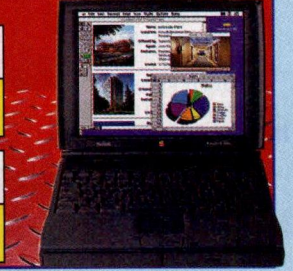

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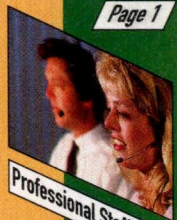

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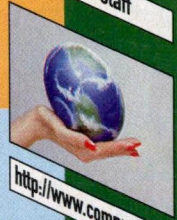

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266MHZ G3 MINI TOWER FEATURE CHECK

- 266Mhz PowerPC G3 processor
- 32MB RAM (384MB maximum)
- 6GB Internal Hard Drive
- 512K Backside cache, 3PCI slots
- 24x speed CD-ROM drive
- 100MB internal Iomega ZIP Drive
- 2MB SGRAM (6MB maximum)
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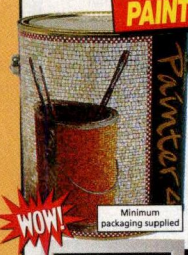

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G3

WHAT'S ALL THE FUSS?

PowerPC G3

The emergence of the PowerPC G3 processor marks the third generation in the development of advanced processor technology. This innovative chip differs from the earlier implementations of PowerPC processor technology in several significant ways, all designed to further increase performance: MacOS optimization, Innovative level 2 backside cache design, large level 1 (on-chip) caches, and state-of-the-art manufacturing techniques.

Backside Cache -- Unleashing Processor Performance

By far the biggest boost to performance that the PowerPC G3 offers can be credited to its incorporation of an approach to level 2 cache memory known as backside cache. This approach effectively bypasses limitations on the speed at which transactions between the processor and the level 2 cache can occur. Earlier PowerPC processors used the system bus to access both the level 2 cache memory and the main memory, which could result in conflicts. For example, under the previous approach, at processor clock speeds above 200 megahertz, the CPU would often stall as it waited for data to arrive from the level 2 cache. To prevent such slowdowns, the PowerPC G3 processor features a new dedicated bus that handles only the CPU/cache transactions. This bus can operate at higher speeds than the system bus -- speeds that relate incrementally to the clock speed of the processor. This enables the more effective use of level 2 cache, because even the relatively large amounts of data they can store can be accessed by the processor rapidly and efficiently. In fact, as clock speeds increase, so does the performance value offered by the backside cache design.

Learning to Look Beyond Megahertz

The performance enhancements of the PowerPC G3 processor significantly reduce the usefulness of clock speed in attempting to compare computer performance. Apple systems based on this processor consistently outperform systems with higher clock speeds -- in fact, they also outperform Pentium II-based systems. Some examples follow.

- A 250Mhz Macintosh PowerBook G3 is faster than a 266MHz Pentium II desktop.*
- A 233Mhz Power Macintosh G3 is faster than the Power Macintosh 6500/300 and the Power Macintosh 8600/300.**
- A 266Mhz Power Macintosh G3 provides performance that is on average 30 percent faster than that of a comparable 266Mhz Pentium II system.*

All of which means that when you're looking for the computer that's right for you, it's more important than ever to consider overall product design -- megahertz alone does not tell the whole story.

* Based on Apple internal tests running 15 separate Adobe Photoshop filters.

** Based on Apple internal testing using MacBench 4.0 processor performance scores. Actual performance on applications may vary. MacBench is a subsystem-level benchmark that measures the relative performance of Mac OS-based systems.

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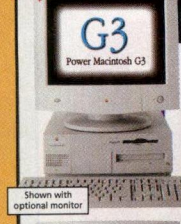

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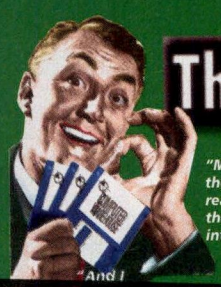

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But that's not all. This incredible value machine now comes with a wealth of software applications for natural media artwork creation, postcript illustration, photo compositing, 3D modelling /animation, and general business tasks.

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THE CW FEATURE CHECK

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- 96MB RAM (160Mb max)
- 512k L2 Cache ■ 2MB SGRAM
- Iomega 100Mb internal Zip drive
- Fast 6.4 Gig internal IDE Hard Drive
- Internal 24X speed IDE CD-ROM
- 10BASE T Ethernet ■ 5 PCI slots
- Extended CW Keyboard & Mouse
- **INCLUDES** Claris Works v4 & CAT
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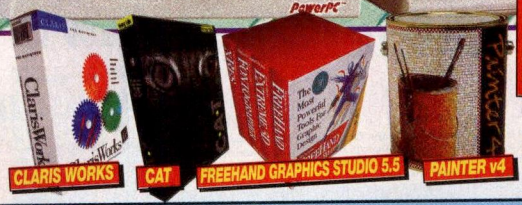

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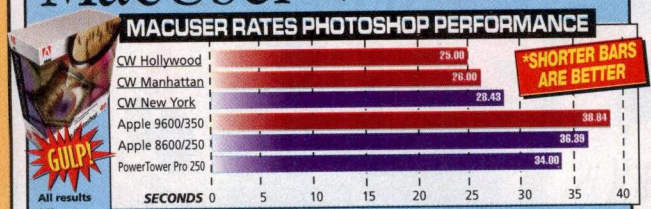
MacUser

In a recent issue, MacUser did a massive Labs test of all current MacOS systems. CW out-performed Apples finest in the PhotoShop, CD-ROM and Hard Drive performance tests.



GULP!

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Time taken to complete a series of gaussian blur, rotate, flip, emboss, unsharp ,mask, and despeckle actions in photoshop 4.0 on a 4.2mb CMYK image. Shorter bars are better.

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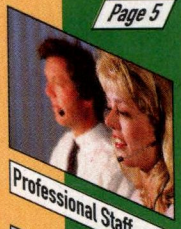

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'BOSTON- REMARKABLE FOR THE PRICE' MAC USER GIVES BOSTON RAVE REVIEW!

BOSTON

NEW SPECIFICATION

NEW PRICE!

200MHz 604e

4½ MICE MAC USER RATING!

"A remarkable machine for the price."
MacUser Jan 9 1998

MacUser Labs

"Delivers power and performance at a remarkably low price."
"If you're looking for power without the price, Boston is hard to beat."
MacUser Jan 9 1998

STOP RIGHT THERE! To celebrate a quite stunning review (it was almost embarrassing), in which the CW Boston achieved an rating of 4½ mice in the January 9th 1998 issue of MacUser the 'old chap is now offering the powerful CW Boston at an incredible £799! - That's a £100 saving on the previous advertised price and the best value of ANY MacOS system ANYWHERE! With competitors offering 'snail-like' 603e systems for the same money there has never been a better time to go for 604e power. But hurry! - this special deal is strictly limited so it has to be first come-first served.

THE SPECS THAT WOW'D MACUSER!

- **100% MAC OS COMPATIBLE**
- 200MHz PowerPC 604e processor with 64K on-chip cache)
- 5 PCI expansion slots
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CW BOSTON 604e/200 32/1.6/24xCD L2

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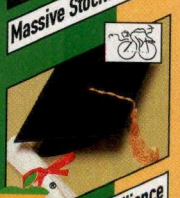
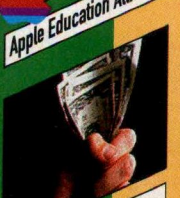
Massive Stocks!!


Apple Education Alliance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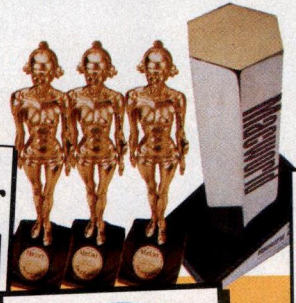

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CW GIVES YOU THE CHANCE TO JUMP ON THE G3 BANDWAGON!

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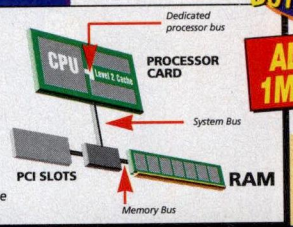
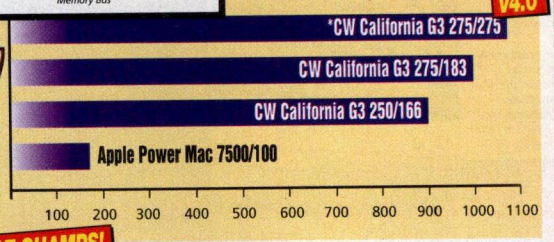
ALL CARDS HAVE A FULL 1MB OF BACKSIDE CACHE!

BACKSIDE CACHE
The backside cache design allows the CPU to access the cache directly at speeds up to the clock of the processor (275Mhz in the case of the 275/275!)



MacBench

All tests conducted using MacBench 4.0 by CW engineers. v4.0



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CW CALIFORNIA G3 250/166 1MB CACHE

CALIFORNIA G3

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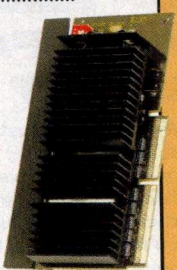

Let's face it - when it comes to speed - you just can't get enough. Especially if you're a graphics, multimedia or video professional.
And that ultra-fast Mac OS system you purchased a year ago is now looking a little slow compared with the new G3 offerings from Apple. Well with a new CW California G3 Processor Card installed in your Mac (or Mac clone*) you can breath new life into your Macintosh system, out-gun even Apple's finest and maximise your productivity.
Just check this little lot out!

Painter v4 Included!
Natural-Media® painting and drawing tools together in a revolutionary multiple layer graphics environment! Create PostScript objects in Painter 4 or import your images from Freehand. Additional features include: a "gotta-see-it-to-believe-it" Mosaic tool. Easy Web Graphic creation. Probably the most creative tool available!

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HUGE 1MB BACKSIDE CACHE!

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Unlike Apple's G3 Power Macintosh systems and some other G3 cards available (which have to make do with a weedy 512K of cache), ALL CW California cards offer no less than 1MB of Backside Cache. This DOUBLING of the usual amount of cache means that the processor is operating more efficiently giving an even levels of performance. The California G3 250/166 cache runs at a meaty 166Mhz (1.5:1 ratio), the California G3 275/183 runs at 183Mhz (2:1 ratio) while the top of the range California G3 275/275 runs at a blinding 275Mhz (1:1 ratio).
For comparison a 604 cache bus usually runs at 50Mhz!

QUALITY DESIGN & BUILD

CW California G3 Processor Cards are manufactured to the highest standards possible in the United States. Each card undergoes thorough 'Quality Assurance Testing' and comes with a full one-year parts & labour warranty.

INSTALL IT & FORGET IT!

Installing a CW California G3 Processor Card into your Mac OS system couldn't be easier. Just remove your existing processor card, plug in the California, restart and you're ready to go! There's no re-installing of your software, no re-formatting of your hard drives, no steep learning curve - just masses of new G3 power.

'DOWN THE LINE' BENEFITS

Plus your old processor card is still of value. You could use it to upgrade another Mac or pass it on to a friend.

NOTE: Please specify your current Mac (or Mac Clone) model when ordering.

COMPATIBLE WITH MOST APPLE POWER MACS, POWER COMPUTING & UMAX SYSTEMS!

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What is Connect To Your Mac™?
Connect To Your Mac means that users in graphics arts, prepress, video and publishing environments, who now work predominantly on Mac-based desktop machines, can rely on alternative solutions (for example graphics workstations running Windows NT) that are powerful, easy to use and fully compatible with Mac systems and media.

ConnectToYourMac Windows NT Solution™

MAIN FEATURES

- Incredibly fast rendering & compositing when using applications such as Adobe After Effects, LightWave Adobe PhotoShop
- Works alongside and on the same network as Apple Macintosh & other systems
- Run the same graphics & video packages that you're used to on the Mac including PhotoShop, Illustrator, Freehand etc.
- Fully compatible with Mac systems and media

Shown with optional monitor & keyboard

4 AWARDS IN 3 YEARS!

WOW!

Microsoft Windows NT Workstation

MMX™ intel inside pentium® II

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VERY FAST, WELL CONNECTED & A BIT EXTREME!

When you're investing in hardware for the graphic design or prepress work you do, performance is what really counts. We're not just talking speed, although it's nice to not have to wait ages for Photoshop to process a 60MB file. Ultimate performance also means you can work alongside and interact with other systems including Mac and UNIX boxes, run the same applications that you're used to like Photoshop, Illustrator, QuarkXpress - using the clicks and commands you know and get the options you need now and the room to expand later.

INTERGRAPH EXTREMEZ 3D SPEC CHECK

- Dual 300MHz Intel Pentium II processor (Single processor version also available)
- 4GB SCSI III Hard Drive (expandable to three 4GB drives)
- 128MB RAM memory (expand to 512MB)
- 8MB Millennium II 2D graphics card
- 24x EIDE CD-ROM drive, 3.5" floppy
- Microsoft WIndows NT Workstation
- Connectivity Package: Miramar Personal MACLAN Connect for NT, DataViz MacOpener & ColorSolutions Starter CM
- Adobe Type Manager

DUAL 300MHZ

SINGLE PROCESSOR VERSION ALSO AVAILABLE

£3995

DUAL 300MHZ WINDOWS NT WORKSTATION EX VAT

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If you're ready to take your 2D and 3D creativity to extremes, you need a Graphic Workstation from Intergraph. These ultra-high performance, expandable, easy to use systems for Windows NT come with Intel® Pentium II processors, built-in Mac™ networking capabilities and a host of high quality, industry standard components.

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And that's the real buzz about these computers. - Connectivity.

The worst bottleneck when working with captured video or large graphics files on the Mac is speed of rendering and image compositing, especially when your using applications such as Adobe After Effects and LightWave and PhotoShop.

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However, imagine capturing and editing you're video on, say, a Cannes then easily transferring the session for Adobe After Effects post production special effects on a blazing dual 300MHz Pentium II ExtremeZ workstation!

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For the past two years Intergraph Computer Systems have been taking their Windows NT-based workstations to Hollywood, where they're delivering SGI-class graphics for half the cost.

And now Intergraph have addressed the publishing and video industries with a range of 'Connect to your Mac' graphics workstations that are more than just pieces of hardware.

They are solutions that help you take your creativity and productivity to extremes.

Why Windows NT for Publishing & Prepress?

Windows NT empowers you to:

- *Interpolate with other platforms and operating systems that you and you clients work with*
- *Work faster than ever before thanks to true multitasking performance*
- *Enjoy this great performance while working with an easy-to-use interface*
- *Run the graphics applications you know and love from the Mac platform including Freehand, Illustrator, Photoshop, AfterEffects, QuarkXpress etc.*

YOU CAN'T BUY BETTER!

Microsoft WindowsNT Workstation

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RUNS ALL YOUR FAVOURITE GRAPHICS & PRE-PRESS APPS!

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300MHZ PENTIUM II

The Intergraph TD family of workstations are also aimed squarely at publishing and prepress professionals. These high-quality systems - powerful yet very affordable - are ideal for page layout, content creation, and 2D design. These 'True Design' machines are built for Windows NT with either single or dual Intel Pentium® II processors.

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Microsoft WindowsNT Workstation

MMX intel inside pentium II processor

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CW SPEC CHECK

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- 64MB RAM
- 4MB Millennium II 2D graphics card
- CD-ROM drive
- 3.5" floppy drive
- Microsoft WIndows NT Workstation
- Connectivity Package: Miramar Personal MACLAN Connect for NT, DataViz MacOpener & ColorSolutions Starter CM
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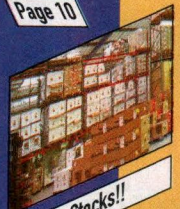

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CW likes to call them the ultimate display solution.

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SUPREME VALUE 17" DISPLAY

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- 0.26mm dot pitch
- Up to 1280 x 1024 pixels @ 75Hz
- On screen control - Power management, 3 white color presets
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FORMAC PRONITRON 1702 MONITOR

PRONITRON 17/500

EXCELLENT PICTURE!

16" VIEWABLE AREA

The excellent Trinitron 17" screen and quality of build ensures this great value monitor provides CW with bright, sharp, clear images. The casing is functional and clean and the controls are a blast to use. - Worthy of the MacFormat Classic award and no less than 4 stars (8.4) it received in a recent MacWorld review!

THE CW FEATURE CHECK

- Trinitron Aperture Grill technology
- 75hz scan rate @ 1024 x 768
- 0.25mm dot pitch
- Color temperature adjustment
- Power management controls
- Easy to use front-mounted controls
- SUPPORTS UP TO 1280 X 1024

WOW!

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PRONITRON 20/600

AWARD WINNING 20" TRINITRON

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FORMAC PRONITRON 20/600 MONITOR

FORMAC PCI CARDS

AWARD WINNING PCI CARDS!

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"For blistering speed at an affordable price the Proformance II 80 is unbeatable"
MacWorld March 98 5 stars/9.0!!

PROFORMANCE SERIES - *MAC USER BEST BUY!*

Winner of numerous 'best buys' - the original Imagine 128 card offers top performance at a great value price. Fit one of these and experience 120% increase in Photoshop scroll speed, and QuickDraw 3D acceleration.

PROMEDIA SERIES - *MACFORMAT CLASSIC!*

Two new 64 Bit PCI graphic accelerators which offer extreme acceleration of screen redraw, QuickTime and Quickdraw 3D. Furthermore, the ProMedia can be expanded with a tv-tuner module!

PROMEDIA 40 PLUS	PROFORMANCE 80	PROFORMANCE II 80
S3 VIRGE CHIP, 64-BIT 1280 X 1024 MAX RES	IMAGINE II CHIP, 128-BIT 1920 X 1080 24-BIT RES	IMAGINE III CHIP, 128-BIT 1920 X 1080 24-BIT RES
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THE NEW CW™ PC COMPATIBLES!

GOSH!

PARIS 166MHZ 6X86

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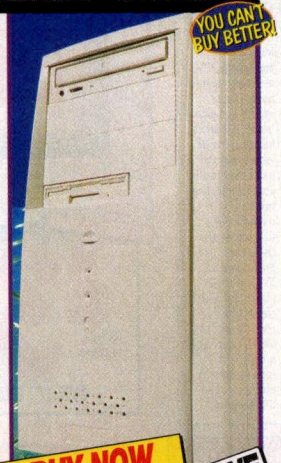
- 430 TX CHIPSET / PC 97 MOTHERBOARD
- YEAR 2000 COMPLIANT BIOS
- 32MB MEGABYTES OF SDRAM (256 MB RAM MAXIMUM)
- 512K LEVEL 2 PIPELINE BURST CACHE
- 4.3GB ULTRA DMA DRIVE
- 24X SPEED CD-ROM
- 4 PCI EXPANSION SLOTS
- 3 ISA EXPANSION SLOTS
- 2 USB, 2 SERIAL PORT
- 1 PARALLEL PORT
- 64-BIT GRAPHICS CARD (4MB VRAM)
- PS2 KEYBOARD & MOUSE
- WINDOWS 95 SOFTWARE

Cyrix 6x86



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- 430 TX CHIPSET / PC 97 MOTHERBOARD
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- 3 PCI EXPANSION SLOTS
- 1 ISA EXPANSION SLOT, 1 AGP SLOT
- 3.5" FLOPPY DISK DRIVE
- AGP GRAPHICS CARD (4MB VRAM)
- WINDOWS 95 KEYBOARD, WINDOWS MOUSE & WINDOWS 95™ SOFTWARE

£949 EX VAT £1115 INC.

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MANHATTAN 300MHZ P2

- 300MHZ INTEL PENTIUM® II PROCESSOR
- 440LX MOTHERBOARD WITH INTEL 82440LX AGP CHIP SET
- 64MB MEGABYTES OF SDRAM (384MB MAX)
- 512K LEVEL 2 CACHE
- ULTRA DMA 6.4GB QUANTUM HARD DRIVE
- 24X CD-ROM DRIVE
- INTERNAL IOMEGA 100MB ZIP DRIVE
- 3 PCI EXPANSION SLOTS
- 1 ISA SLOT
- 1 AGP & 1 SHARED SLOT
- 3.5" FLOPPY DISK DRIVE
- AGP GRAPHICS CARD (4MB VRAM)
- WINDOWS 95 KEYBOARD & MOUSE
- WINDOWS 95 SOFTWARE

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LAST FEW LEFT!

300DPI BROTHER LASER!!

BUY THIS PRINTER FOR £99.99 WHEN YOU PURCHASE A CW PC*†!

300DPI, LASER PRINTING IDEAL FOR THE HOME OFFICE!

There simply is no easier way to print! A straight-through paper path means that no longer will you have to suffer paper jams when printing on various media size, weight or style. Just check out these features:

VERSATILE PAPER HANDLING

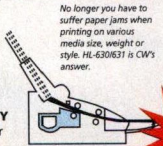
- Straight paper path with short travel distance allows a wide choice of media styles, sizes (8.5 x 14" to 2.75 x 5") & weight
- Multi-purpose sheet-feeder - holds 200 A4/LTR sheets or 10 envelopes.
- Manual feed slot for labels, light card stock & OHP transparencies
- PC printer emulations standard. (HP LaserJet IIP, Epson FX-850 & IBM Proprinter XL) and easy auto emulation switching

SUPER HIGH-QUALITY 300DPI PRINTING WITH BROTHER TECHNOLOGY

- 6ppm print engine
- Clear crisp print quality utilising microfine toner

300DPI QUALITY PRINTING
GENUINE BROTHER LASER
USE WITH BOTH MACs & PCs
WHY BUY AN INKJET??

No longer you have to suffer paper jams when printing on various media size, weight or style. HL-630/631 is CW's answer.



£99.99 EX VAT £117 INC

WHEN PURCHASED WITH A CW PC COMPATIBLE

WOW! PURCHASE SEPARATELY FOR ONLY £199 EX VAT

5 YEAR LABOUR WARRANTY

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CTX MONITORS

CTX 1995 UE 19"

EXCEPTIONAL COLOR

CTX ensure the latest technical developments and excellence are invested in their range of monitors - and this is certainly evident in this 19" monitor. Its clear, bright display has great color balance and excellent ergonomics. Plus a maximum resolution of 1600 x 1200 at 75Hz.

THE CW FEATURE CHECK

- Max resolution 1600 x 1200 @75Hz
- 18" viewable area
- 26kg
- 0.26mm dot pitch
- On screen image control display
- DPMS energy control
- Shadow-mask tube
- Controls include; trapezoidal, parallelogram, pincushion, convergence, auto degauss
- 50-160Hz vertical refresh range
- Case dimensions 440w x 461d x 476h mm

With a heritage of fine engineering and a reputation for forward thinking and innovative technology, CTX are continuing to have a major impact as a global brand. A market leader in the UK, where they sell more monitors by volume than any other manufacturer, CTX is the true choice of professionals. CTX's relentless pursuit for and continuous commitment to excellence ensures quality, consistency and efficiency of all CTX products.

MacUser Labs

NEW AT CW!!

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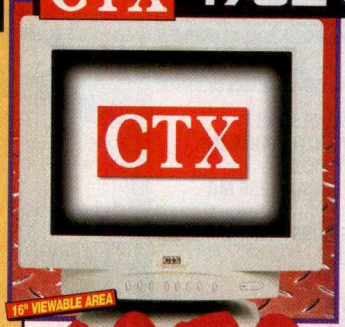
£489.00 EX VAT £575 INC

NEW CTX 1995 UE 19" MONITOR!

CTX 1792 UA 17"



£359 EX VAT £422 INC

CTX 17" TRINITRON 1792 UA

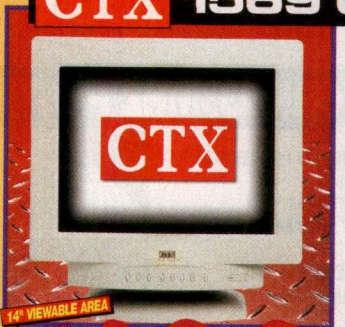
SAVE ££'s @ CW!!

ALL ROUND BEST VALUE!!

- Max resolution of 1600 x 1200 at 70Hz
- 16" viewable area
- 0.25mm aperture grille
- Weighs 18.5kg
- On screen image control display
- 17" Trinitron CRT
- 12 Factory presets
- 50-160Hz vertical sync
- Dimensions 415w x 430h x 446d mm
- 135MHz video band width

PC PRO VALUE

CTX 1569 UA 15"



£199 EX VAT £234 INC

CTX 15" TRINITRON 1569 UA

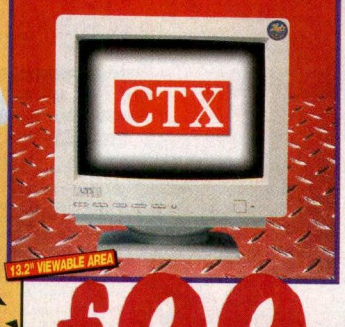
SAVE ££'s @ CW!!

YOU CAN'T BUY BETTER!

ON-SCREEN DISPLAY CONTROLS

- Max resolution of 1280 x 1024 at 60Hz
- 14" viewable area
- 0.25mm aperture grille
- Weighs 14kg
- On screen image control display
- 15" Trinitron CRT
- 12 Factory presets
- 50-120Hz vertical sync
- Dimensions 370w x 380h x 400d mm
- 110MHz video bandwidth

CTX 1451 ELR 14"



£99 EX VAT £117 INC

CTX 14" TRINITRON 1451 ELR

SAVE ££'s @ CW!!

YOU CAN'T BUY BETTER!

IDEAL HOME OR OFFICE MONITOR

- Max resolution of 1024 x 768 at 60Hz
- 13.2" viewable area
- 0.28mm dot pitch
- Weighs 12.6kg
- Digital control, vertical position/size, horizontal position/size, brightness, contrast, Plug and Play
- 14" Conventional CRT
- 8 Factory presets
- 50-120Hz vertical sync

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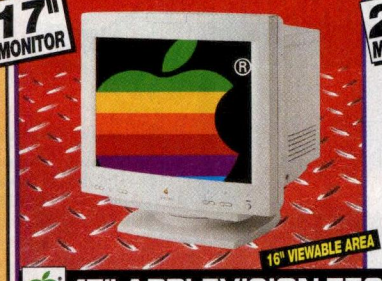
STUNNING MONITOR DEALS!

NEW LOW PRICES!

17" MONITOR



17" APPLEVISION 750

The perfect solution for all business professionals & desktop publishers

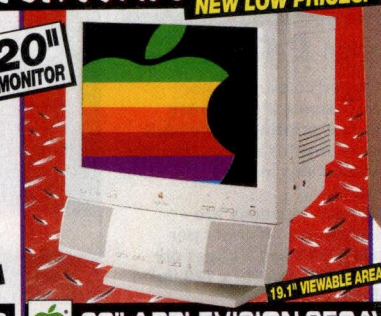
- Sony Trinitron CRT technology
- 0.25mm aperture grille pitch
- Crisp bright colour
- 1024 x 76, 1152 x 870 or 1600 x 1200

NEW LOW PRICE!

£419 EX VAT

SAVE ££'s @ CW!! 17" APPLEVISION 750 MONITOR

20" MONITOR



20" APPLEVISION 850AV

20" color display with extensive easy to use software for screen control

- Features a 20" Sony Trinitron tube
- In-built stereo sound system
- Apple Digital Color Technology
- 1600 x 1200 maximum resolution

NEW LOW PRICE!

£999 EX VAT

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17" TRINITRON

16.1" VIEWABLE AREA

SPECIAL PRICE!!

APPLE 1710AV

CW has managed to secure a LIMITED SUPPLY of these excellent AV monitors which feature glorious Trinitron tubes! - Call NOW!

- 1024 x 768 @ 75Hz - Genuine Trinitron Tube
- In-built ADB, stereo speakers and microphone

YOU CAN'T BUY BETTER!

£399 EX VAT

SAVE ££'s @ CW!! 17" APPLE 1710AV TRINITRON MONITOR

LASERWRITER 8500

BUY NOW PAY 6 MONTHS LATER

A3 MONO LASER

Ideal for printing high volumes or complex documents quickly and with superior quality. PostScript 3 language provides higher performance, enhanced image quality, and advanced page processing. It also offers support for full-bleed printing on various paper sizes, up to ledger/A3. And its blazingly fast, 20-page-per-minute print speed!

THE CW FEATURE CHECK

Ground-breaking new capabilities
- Adobe PostScript 3
- Offers full-bleed printing on various paper sizes including ledger/A3
- Easily print to the LaserWriter 8500 from remote locations using the LaserWriter 8.5 IP printing software feature

Outstanding compatibility
- Works with Mac OS, Windows 3.1, Windows 95, Windows NT, and UNIX
- AppleTalk, EtherTalk, Novell NetWare, and TCP/IP networking protocols

High-speed, high-volume printing
- Fast RISC processor
- Powerful 20-page-per-minute engine
- Optional LaserWriter 8500 Plus Upgrade Kit offers the ultimate in high-volume printing convenience
- Supports an optional Duplex Printing Unit with a job sorting/jogger function
- Uses a high-capacity, long-life toner cartridge (up to 14,000 pages)

Superior print quality
- Improved PhotoGrade and FinePrint for photorealistic images & precise, sharp text

SAVE £££ AT CW!

£1349 EX VAT £1585 INC

YOU CAN'T BUY BETTER! APPLE LASERWRITER 8500 A3 PRINTER

PRINTER BARGAINS!

WHILE STOCKS LAST!

LASERWRITER 4/600

APPLE 600dpi MONO LASER
4PPM OPERATION
POSTSCRIPT LEVEL 2

£449 EX VAT

WHILE STOCKS LAST!

LASERWRITER 12/640

APPLE 600dpi MONO LASER
12PPM OPERATION
POSTSCRIPT LEVEL 2

£799 EX VAT £939 INC

NEW LOW PRICE!

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LASERWRITER 12/660

APPLE 600dpi COLOR LASER
12PPM OPERATION
16MB RAM, P/SCRIPT LEVEL 2

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UNBEATABLE DEALS ON EPSON PRINTERS & SCANNERS!

EPSON STYLUS COLOR 800

WOW!

7PPM COLOR!

High speed color or mono printing producing stunning photo-real printing at 1440dpi! The color printer that guarantees you laser sharp images everytime!
And it's super speedy too - producing up to 8 pages per minute mono and 7 pages per minute color at 1440 x 720 dpi resolution.
The Epson Color 800 has an auto color function which selects the best settings for the optimum performance! Unbeatable!

THE CW FEATURE CHECK

Professional features - great price!
- High speed color or mono printing
- 1440 x 720 dpi resolution with quick dry inks
- Auto color function - selects best settings for optimum performance
- Photoreal as standard
- Up to 8ppm mono, 7ppm color performance

YOU CAN'T BUY BETTER!

£207 EX VAT

EPSON GT1200 A3 COLOR SCANNER

SAVE ££ AT CW!

ADD POSTSCRIPT FOR £99

EPSON GT12000 SCANNER

A3 SCANNER

In the past, if you wanted big impact, large format scanning, you had to outsource your works, costing both time and money. Well not any longer.
The NEW Epson GT-12000 is a high definition, 800dpi flatbed scanner designed and thoroughly CW recommended for professional graphics proofing, CAD manipulation and document archiving.

THE CW FEATURE CHECK

Professional features - great price!
- Ultra-large A3 Scanning area - no less than 12.2" x 17.2"!!
- Gorgeous and rich full 36-bit input and output color scanning
- 68 billion color scanning!
- 4,096 grayscale scanning
- Optical resolution 800dpi x 1600dpi
- Maximum interpolated resolution 6400dpi
- Optical Density 3.3 - enough for professional scanning!
- Descreening, batch scanning and multiple frame scanning available with bundled software

SAVE ££ AT CW!

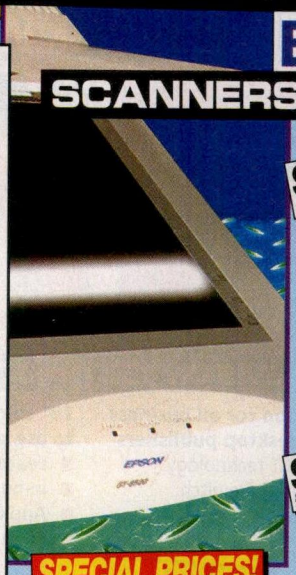
£1299 EX VAT

YOU CAN'T BUY BETTER! EPSON GT12000 A3 COLOR SCANNER

BUY NOW PAY SIX MONTHS LATER

MINIMUM 10% deposit with nothing to pay for 6 months, then settle in full and pay no interest (APR 0%). eg Purchase price £1526.33 (inc vat). Deposit of £153.33 and pay balance of £1373.00 on or before due payment date, interest free or commence minium monthly payments of £58 at an interest rate of 2.2% per month (APR 29.8%). Written details on request.

EPSON SCANNERS!



SPECIAL PRICES!

If you're about to buy a color scanner - DON'T until you've seen this superb range of easy to use, yet extremely powerful offerings from Epson. These scanners offer a level of quality and scanning control far above their oh-so-reasonable price tags. - Sneak a peak at the zippy GT5500, a scanner with an un-precidented easy learning curve. In no time at all you'll be scanning color photographs, scanning text for OCR and line art drawings. CW has all Epson scanners in stock at incredible savings - call today and grab yourself a bargain!

YOU CAN'T BUY BETTER!

SAVE ££ AT CW!

EPSON GT-5500

24-BIT COLOR SCANNING
300DPI OPTICAL RES
TEXTBRIDGE OCR & PHOTOSHOP LE

£219 EX VAT £257 INC.

SAVE ££ AT CW!

EPSON GT-8500

30-BIT COLOR SCANNING
300DPI OPTICAL RES (TO 3200DPI)
TEXTBRIDGE OCR & PHOTOSHOP LE

£389 EX VAT £457 INC.

SAVE ££ AT CW!

EPSON GT-9500

36-BIT COLOR SCANNING
600DPI OPTICAL RES (TO 4800DPI)
TEXTBRIDGE OCR & PHOTOSHOP LE

£449 EX VAT £528INC.

EPSON NEW..NEW..

NEW FROM EPSON

NEW FROM EPSON!

ESPON STYLUS PHOTO 700

COLOR 1440DPI A4 INKJET
SUPER MICRODOT
AMAZING PHOTO QUALITY!

£NEW! EX VAT

NEW FROM EPSON!

ESPON STYLUS COLOR 850

COLOR 1440DPI A4 INKJET
INCREDIBLY FAST - 9PPM!
PHOTOREAL OUTPUT

£243 EX VAT £939 INC.

NEW FROM EPSON!

ESPON STYLUS PHOTO EX

COLOR 1440DPI A3 INKJET
PHOTO REPRODUCTION
SUPER MICRODOT OUTPUT

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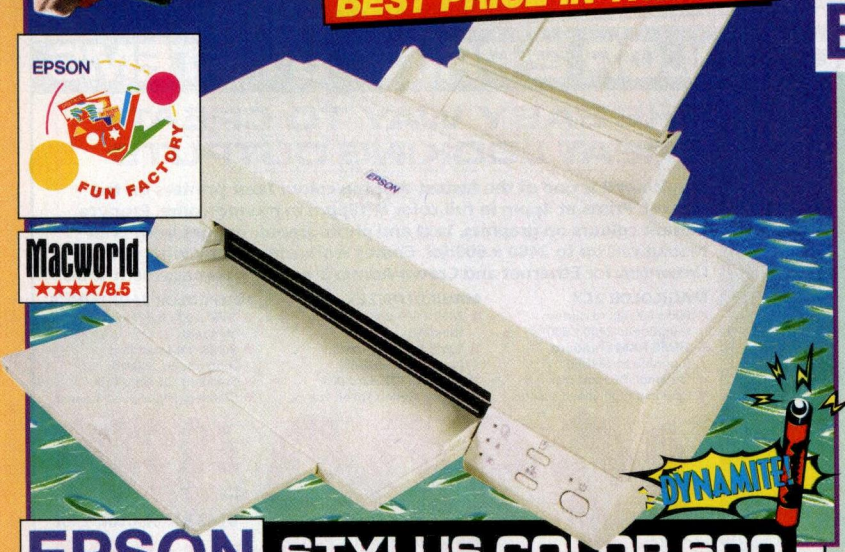


EPSON STYLUS COLOR 600

CW'S BEST VALUE COLOR INKJET!

The Epson Stylus Color 600 provides home business users and graphics artists with high-speed color or mono printing at up to 6 ppm. Featuring Epson's PerfectPicture Imaging System™, which includes Epson's unique Micro Piezo Technology™ for small accurate ink dots, and Epson AcuPhoto Halftoning Technology™ for accurate colors and smooth graduation superb output is guaranteed.
CW loves the gorgeous rich tones and saturated color.
You can't buy better!

THE CW FEATURE CHECK

- Up to 6 page per minute operation
- 1440 x 720dpi resolution
- Advanced dual Ink cartridge system
- Photo-realistic quality
- New Quick-Dry inks for clearer images
- Prints to paper & transparent film
- Excellent for office, education and home
- CW's BEST BUY Inkjet printer!

£155 EX VAT

EPSON STYLUS COLOR 600 PRINTER

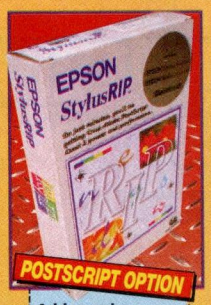
BEST VALUE AND TOTALLY RECOMMENDED!

SAVE ££ AT CW!

EPSON

The EPSON Stylus Color 600 printer provides business users and graphics artists with high-speed color or mono printing and is the CW recommended ink-jet. The 600 features EPSON'S NEW PerfectPicture Imaging System™, this includes EPSON'S unique Micro Piezo Technology™ for small accurate ink dots, and EPSON AcuPhoto Halftoning Technology™ for accurate colors and smooth graduation. These two technologies along with Super MicroDot™ and MicroWeave™ provide 1440dpi resolution and true photo-real printing. New Quick-Dry inks produce superb quality output on all types of media, especially on plain paper, and give richer more vibrant color in addition to sharper images and improved water resistance.
Compatible with ColorSync 2.0 this printer is an absolute steal!

ASK FOR PRINT SAMPLES FOR ANY EPSON PRINTER!



POSTSCRIPT OPTION

Add genuine Adobe PostScript Level 2 capability to an EPSON Stylus Color 800, Stylus COlor 1520 & Stylus Pro XL and turn it into a Graphics King! With the EPSON RIP you can use your Epson Printer for proofing Quark pages and printing Illustrator and Freehand Graphics.
No more guesswork.
No more jagged images.
No more jagged fonts.
Just smooth PostScript output.
CW recommended for graphics professionals.

£99 EX VAT / INC. VAT

EPSON STYLUS RIP

EPSON STYLUS PHOTO

INCREDIBLE PHOTO QUALITY

The EPSON Stylus Photo has been designed as a dedicated photo printer for the home, business or professional user.
CW just can't believe the stunning, Photo Reproduction Quality of this impressive printer - it really has to be seen to be believed. What would have cost thousands but a few years ago is now affordable.

THE CW FEATURE CHECK

- Photo Reproduction Quality output (PRQ)
- Optimised for photo reproduction
- Prints text as usual
- Prints 4" x 6" format and enlargements to A4
- Normal and light color Inks (6 color printer)
- Up to 720 x 720dpi resolution
- From 2 minutes per 4" x 6" photo size print
- Comes bundled with LivePix software

£199 EX VAT £234 INC

SAVE ££ AT CW!

PHOTO REALISTIC!!

BEST PRICE IN THE UK!!

YOU CAN'T BUY BETTER!

EPSON STYLUS COLOR 1520

A2 FORMAT INKJET

Ideal for CAD applications, the '1520 features a MicroPiezo™ print head & MicroDot technology.

- 128 nozzle print head
- Up to 1440dpi photoreal output (special papers)
- 8ppm mono
- 4ppm color
- Wide-format (print width 345mm)
- Ethernet & Postscript options

ADD POSTSCRIPT FOR £99

£510 EX VAT £599 INC. VAT

EPSON STYLUS COLOR 1520

SAVE ££ AT CW!

EPSON STYLUS COLOR 3000

WIDE FORMAT COLOR

Perfect for large format color proofs & comps, the '3000 produces stunning output up to 5 metres in length!!

- Full A2 format (print width 410mm)
- 1440 dpi resolution
- High capacity ink delivery system
- Individual Ink cartridges
- Ethernet networking & Postscript options
- Ideal for graphics studio

ADD POSTSCRIPT FOR £189

£1099 EX VAT £1291 INC. VAT

EPSON STYLUS COLOR 3000

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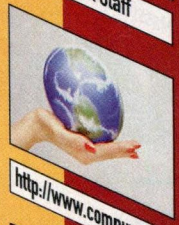

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Easy Payment Plans

QMS MAGICOLOR 2 PRINT SYSTEMS

BUY NOW PAY 6 MONTHS LATER DEPOSIT REQUIRED

2400DPI QUALITY PRINTING
POSTSCRIPT LEVEL 2
LOW COST PER PAGE
EASY-TO-USE CONSUMABLES

DO NOT CONFUSE THIS WITH THE OLD MODEL!!

THE EASY WAY TO CREATE GREAT LOOKING OUTPUTS

Magicolor 2 is one of the fastest desktop colour laser printers on the market. Prints at 4ppm in full color & 16ppm in monochrome. Produce vibrant colours on graphics, text and photographic images with print resolutions up to 2400 x 600dpi. Comes workgroup ready with QMS CrownNet for Ethernet and Crown Admin 3 network management tools.

MAGICOLOR 2 CX
- 600 x 600 dpi resolution (upgrade to 2400 x 600)
- **24MB RAM standard** (upgrade to 384MB)
- Optional IDE Hard Disk
- Optional High Speed Scanner

MAGICOLOR 2 EX
- 2400 x 600 dpi resolution standard
- 80MB RAM standard (upgrade to 384MB)
- Standard IDE Hard Disk
- Optional High Speed Scanner

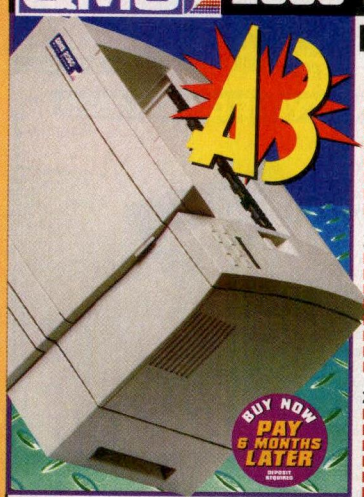
MAGICOLOR 2 MULTI-PACS
- 2400 x 600 dpi resolution standard
- 80MB RAM standard (upgrade to 384MB)
- Standard IDE Hard Disk
- Standard High Speed Scanner

£2399 EX VAT £2819 INC
QMS MAGICOLOR 2 CX PRINTER

£3299 EX VAT £3876 INC
QMS MAGICOLOR 2 EX

£4499 EX VAT £5286 INC
QMS MAGICOLOR 2 EX MULTI-PACS

QMS 2060 TECHNICAL



FEATURE CHECK

2060BX ..... £2299 EX
- 8MB RAM standard
- 600dpi A4 resolution
- 300dpi A3 (1200 dpi optional)
- 150 sheets A4/A3, 500 A4
- Optional Internal Hard Disk
- Optional ImageServer Code
- Optional Duplexer
- Ideal for general business user

2060GX ..... £2449 EX
- 16MB RAM standard
- 600dpi A4 resolution
- 600dpi A3 (1200 dpi optional)
- 150 sheets A4/A3, 250 universal
- Optional Internal Hard Disk
- Optional ImageServer Code
- Optional Duplexer
- Ideal for graphics applications

2060 ImageServer £2899 EX
- 24MB RAM standard
- 600dpi A4 resolution
- 600dpi A3 (1200 dpi optional)
- 150 sheets A4/A3, 250 universal
- Standard Internal Hard Disk
- Standard ImageServer Code
- Optional Duplexer
- For fast print-on-demand applications

2060EX ..... £3949 EX
- 48MB RAM standard
- 1200dpi A4 resolution
- 1200dpi A3
- 150 sheets A4/A3, 250 universal
- Standard Internal Hard Disk
- Standard ImageServer Code
- Standard Duplexer
- Ideal for busy networks

2060 MULTI-PACS £4899 EX
- 48MB RAM standard
- 1200dpi A4 resolution
- 1200dpi A3 (1200 dpi standard)
- 150 sheets A4/A3, 250 universal
- Standard Internal Hard Disk
- Standard ImageServer Code
- Standard Duplexer
- Walk-up photocopying function

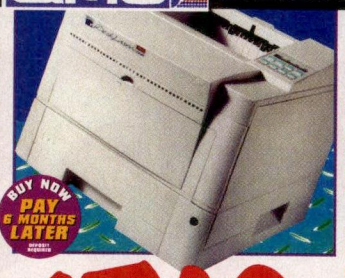
FAST A3 PRINTER HUGE VERSATILITY

Designed with powerful features for use in a multitude of different applications and environments,the QMS 2060 Print Systems offer versatility and affordability for small to medium size workgroups.

£2299 EX VAT
QMS 2060BX A3 PRINTER

SAVE ££'s @ CW!!

QMS DESKLASER 1600



16PPM POSTSCRIPT LEVEL 2 COMPATIBLE

- 16 pages per minute
- Maximum resolution 2400 x 600 dpi
- Maximum paper size 216mm x 360mm
- 12 or 20Mb RAM (68Mb max)
- Postscript level 2 compatible
- 500 sheets (1600/XNet has a second 500 sheet tray as standard)
- Ethernet (optional on 1600)
- Serial interface as standard
- Optional Duplexer (standard on 1600/XNet)

£719 EX VAT £845 INC
QMS DESKLASER 1600 (12MB)

SAVE ££'s @ CW!!

QMS DESKLASER 1600/NET £999 £1173 INC VAT

QMS DESKLASER 1600/XNET £1549 £1820 INC VAT

QMS COLORSCRIPT

DYE-SUBLIMATION PHOTOGRAPHIC QUALITY!

- Supports over-sized printing for full A3 image (330) or A4 image (310) with bleed/crop marks
- 64Mb RAM (Colorscript 310)
- 128Mb RAM (Colorscript 330)
- Postscript level 2 compatible
- Ethernet as standard
- Ideal for pre-press applications and digital photo reproduction

£2995 EX VAT £3519 INC
QMS COLORSCRIPT 310

SAVE ££'s @ CW!!

AMAZING NEW LOW PRICES!
QMS COLORSCRIPT 330 £4699 £5521 INC VAT

YOU CAN'T BUY BETTER!

PHOTOGRAPHIC QUALITY COLOR PRINTING

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RESELLER OF THE YEAR '95, '96 & 97!

YOUR EYES DO NOT DECEIVE YOU - IT REALLY IS ONLY £89.00!!

PHANTOM 330

COLOR A4 SCANNER LESS THAN £100!!

EXCLUSIVE AVAILABLE ONLY FROM CW!

This 'famous-brand' single-pass flat-bed scanner now features a 30-bit engine, a large scanning area, great software and the advantage of the included OmniPage LE OCR software!
Take a look at the example scans below - all these were scanned on the Phantom.
As you can see, the quality is ideal for any office, home, and graphics use whether print or web!

THIS IMAGE WAS SCANNED ON A PHANTOM 330

30-BIT SCANS
300 X 600DPI
SINGLE-PASS
OMNIPAGE LE
SCAN WIZARD
COLOR IT

THE CW FEATURE CHECK

- Genuine 30-bit color scanning
- 8-bit greyscale scanning
- 1200dpi mono scanning for line art
- 300 x 600dpi optical res - 4800dpi enhanced
- Large 356mm x 216mm scanning area
- OmniPage LE, Scan Wizard and ColorIT image manipulation software included (on CD-ROM)!!!

PHOTOSHOP FULL V4! £100 £117 INC VAT

£89.00 EX VAT

SAVE ££ AT CW!

ALL THESE IMAGES SCANNED ON A PHANTOM 330*

Minimum packaging and electronic documentation supplied.

*Scans color corrected and sharpened in PhotoShop v4

FREE OCR SOFTWARE

INCREDIBLE VALUE

WOW!

PHANTOM 330 30-BIT COLOR FLATBED SCANNER

EXCLUSIVE AVAILABLE ONLY FROM CW!

300DPI BROTHER LASER!!

300DPI, LASER PRINTING IDEAL FOR BOTH MAC & PC!

If you work in a mixed PC environment or perhaps you have both a Mac and a PC at home this is the ideal printer for you. Genuine Laser technology means clean, clear and legible printing (anyone will tell you that a laser produces better output than an inkjet) and the dual connectivity means it can be connected to your Mac and PC with incredible ease AND AT THE A SAME TIME!

SUPER HIGH-QUALITY 300DPI PRINTING WITH BROTHER TECHNOLOGY

- 6ppm print engine
- Clear crisp print quality utilising microfine toner
- Connects to Mac and PC at the same time!
- Economy printing mode for toner saving!

300DPI QUALITY PRINTING
GENUINE BROTHER LASER
USE WITH BOTH MACs & PCs
WHY BUY AN INKJET??

LAST FEW LEFT!

£199 EX VAT £234 INC

HURRY - BUY NOW!!

WOW!

SAVE ££ AT CW!

BROTHER 300DPI LASER PRINTER

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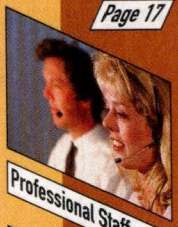

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"If it's quality you're after - check out the Saphir Ultra."

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QUAD AWARD WINNER, VOTED MacUser Macworld

ULTIMATE VALUE AT CW!!

GREAT QUALITY, MULTI AWARD WINNING SCANNERS!

Linotype CPS

Linotype have literally cleaned up with their scanners with the Mac magazines heaping awards on them like there was no tomorrow. And it's easy to see why. They all offers supreme color fidelity, come with great software bundles and deliver the type of scans which, up until recently, were the domain of expensive high-end drum units. CW recommends them!

MacUser Best Buy

Macworld ★★★★/8.8

"Some products are worth paying for, and this is one of them."
MacUser Saphir Ultra 4.5 Stars

YOU CAN'T BUY BETTER!

MacUser Labs

"..boasts a significant colour fidelity advantage over the rest"
MacUser Saphir 4.5 Stars

WOW!

1997 MACUSER AWARDS BEST SCANNER!

Linotype CPS SAPHIR

- CCD FLATBED SCANNER WITH INTEGRATED TRANNY UNIT
- HIGH SPEED THANKS TO SINGLE-PASS SCANNING
- 600 X 1200 DPI OPTICAL RESOLUTION
- 3600 X 3600 INTERPOLATED RESOLUTION
- COLOR DEPTH OF 36 (3 X 12) BITS
- MAXIMUM DENSITY 3.0 D
- ENLARGEMENTS UP TO 400% WITHOUT ANY LOSS OF QUALITY
- COMPLETE WITH LINOCOLOR SOFTWARE

SAVE £££'S @ CW!

BUY NOW PAY 6 MONTHS LATER

£995 EX VAT £1116 INC

AFFORDABLE NEAR REPRO QUALITY

Macworld ★★★★/8.8

Linotype CPS SAPHIR ULTRA

- CCD FLATBED SCANNER WITH INTEGRATED TRANNY UNIT
- HIGH SPEED THANKS TO SINGLE-PASS SCANNING
- 1000 X 2000 DPI OPTICAL RESOLUTION
- 3600 X 3600 INTERPOLATED RESOLUTION
- COLOR DEPTH OF 36 (3 X 12) BITS
- MAXIMUM DENSITY 3.3 D
- ENLARGEMENTS UP TO 400% WITHOUT ANY LOSS OF QUALITY
- COMPLETE WITH LINOCOLOR LITE 4.1 SOFTWARE

MW

BUY NOW PAY 6 MONTHS LATER

£1995 EX VAT £2344 INC

RECOMMENDED FOR REPRO!

Linotype CPS OPAL ULTRA

- A3 SCANNING BED
- INTEGRATED TRANSPARENCY UNIT
- SINGLE-PASS SCANNING
- OPTICAL RESOLUTION UP TO 1400 X 2800 DPI (HIGHRES MODE)
- 9600DPI INTERPOLATED RESOLUTION
- COLOR DEPTH OF 36 (3 X 12) BITS
- MAXIMUM DENSITY 3.3 D
- ENLARGEMENTS UP TO 300% IN STANDARDRES MODE
- ENLARGEMENTS UP TO 600% IN HIGHRES MODE
- COMPLETE WITH LINOCOLOR LITE 4.1 SOFTWARE

SAVE £££'S @ CW!

BUY NOW PAY 6 MONTHS LATER

£5295 EX VAT £6221 INC

INCREDIBLE 'DRUM QUALITY'

Macworld ★★★★/8.8

Linotype CPS JADE 2

OUTSTANDING VALUE FOR MONEY - USUAL LINOTYPE QUALITY

MACWORLD MW EDITORS' CHOICE

JADE 2 has an optical resolution of 600 x 1200 dpi and a bit depth of 30 (3 x 10) bits. It scans reflective originals up to 355x 216mm and, when the optional transparency unit is fitted, scans transparencies as large as 297 x 216mm - All in a single pass to ensure maximum speed. In addition to the Linotype CPS scanning software, JADE2 comes bundled with image editing and OCR software. This CW recommended user-friendly package guarantees professional color scans from the very first mouseclick.

THE CW FEATURE CHECK

- CCD flatbed scanner with optional tranny unit
- Single pass scanning
- 600 x 1200 dpi optical resolution
- 3600 x 3600 interpolated resolution
- Color depth of 30 (3 x 10) bits
- Maximum density 2.8 D
- Enlarge up to 200% without any quality loss
- Includes LinoColor Easy, Photoshop LE & supports Apple's ColorSync 2.0

LinoColor Easy software makes scanning a breeze automatically taking care of color correction etc.

GOSH!

SAVE £££'S @ CW!

£329 EX VAT £387 INC

YOU CAN'T BUY BETTER!

LINOTYPE JADE 2 COLOR SCANNER

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VISIONEER PAPERPORT

SMALL AND FAST

Surely the world's smallest and fastest scanner - the NEW Color Visioneer Paperport Strobe. Enable you to easily scan anything from business cards and photos to full news columns in as little as two seconds!

VISIONEER PAPERPORT STROBE - COLOR

- Desktop color scanner
- Drag scanned files to fax icon
- Drag and drop scanned documents to and from folders
- Distribute documents quickly via E-mail

£149 EX VAT £175 INC

VISIONEER PAPERPORT STROBE

COMPLETE DOCUMENT MANAGEMENT SYSTEM!

A CW SCOOP PURCHASE!

XEROX 4505

A CW SCOOP PURCHASE!

600DPI POSTSCRIPT LEVEL 2 NETWORK DESKTOP PRINTER

The Xerox 4505 Network Desktop Laser Printer is designed to meet the needs of the networked office. Workgroup productivity is enhanced with advanced Document Services for Printing software that simplifies printer setup, use and administration, and optimizes printer usage. It has a print speed of up to 5 pages per minute, and it has the outstanding print quality you have come to expect from Xerox. This printer is ideal for the small workgroup and individual users.

THE CW FEATURE CHECK

- High resolution 600x600 dpi
- Up to 10,000 pages per month
- Expansion slot supports Ethernet
- PostScript Level 2
- 2Mb RAM expandable to 16Mb
- Single cartridge with microfine toner and imaging drum - installed in secs!
- Up to 250 sheets input capability
- Prints on stocks from 16 to 36lbs and on specials, inc labels/ transparencies
- Range of sizes from envelopes to 11"x17" paper, providing the ultimate flexibility in output format
- 10 TrueType / 35 Intellifont scaleable fonts

WOW!

YOU CAN'T BUY BETTER!

£449 EX VAT £528 INC

SAVE £££'S @ CW!

XEROX 4505 NETWORK DESKTOP PRINTER

VST ZIP 100 DRIVE

- Seamless user interface - behaves just like a floppy - its so easy
- Plug and Play simplicity - use right from the box
- Zip drives are hot-swappable - no need to shut down your computer
- Low cost media makes backing up large files and archiving affordable

VST ZIP 100 DRIVE FOR 3400 & 190/5300 PBOOKS **£269** EX VAT

DIGITAL CAMERAS

"They're sexy, they're cool and they're capable." - MacUser June 1997.
Yes Digital Cameras are here at CW! - Great for home, office and graphic use, these great little devices are now capable of excellent photographic results.
The low-cost ones are perfect for adding images to a web site (the resolution is more than adequate), while the more up-market varieties are an essential addition to any graphics studio and perfect for adding pictures to newsletters, flyers & promotional material etc.

MINOLTA RD-175

35mm TTL Digital Camera from Minolta with a high speed continuous Auto Focus plus PMCIA storage capabilities.

- 1,750,000 pixels ■ SCSI-2 interface
- 1,528 horizontal x 1,146 vertical
- High speed continuous auto focus
- Manual & programme exposure modes and built-in flash ■ Aperture, shutter priority

£3495 EX VAT £4160 INC. VAT

BUY NOW PAY 6 MONTHS LATER

SAVE £££'S @ CW!

FUJI DS-7

Compact digital camera from Fuji with a maximum resolution of 640 x 480. It has the ability to store a total of 64 pictures at one time - incredible!

- 640 x 480 max resolution
- 3 zone focus feature
- Stores up to a maximum of 64 pictures
- 2 Megabyte PC Removable disk

£249 EX VAT £292 INC. VAT

SAVE £££'S @ CW!

SONY DSC-F1

Voted 'BEST BUY' in a recent MacUser and boasting a 180° swivel lens mount & multi-image LCD display, the Sony DSC-F1 offers incredible image quality.

- 640 x 480 max resolution
- 4MB on-board memory
- Stores a maximum of 108 pictures
- Infrared support

BUY NOW PAY 6 MONTHS LATER

£399 EX VAT £469 INC. VAT

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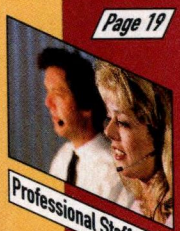

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"Don't be a spanner - buy an Agfa scanner."

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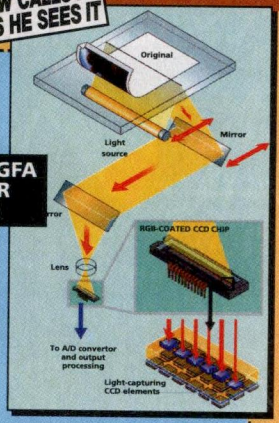
INCREDIBLE VALUE - NEW LOW PRICES!

DESKTOP REPRO SCANNERS WHICH KEEP ON DELIVERING

CW CALLS IT AS HE SEES IT



HOW AN AGFA SCANNER WORKS

Agfa flatbed scanners employ a linear, light sensitive CCD array, which consists of several thousand charge-coupled device elements arranged in a row or a single chip. Originals to be scanned are placed on a glass plate. Transparencies are evenly lit from above and reflective originals from below by a fluorescent light source. Movement of the light source together with a mirror detects consecutive lines of image data onto the static CCD array, via a second mirror and a synchronously focused lens unit.
The full width of an image is read simultaneously as a line. Light of a specific color and intensity falling on each CCD element creates a proportional electrical charge within it. This information is then passed to an A/D convertor which in turn sends it to the Mac.

AGFA
The complete picture.

ARCUS II

Macworld ★★★★/8.1

NEW LOW PRICE & TOP QUALITY SCANS!

The CW recommended Agfa Arcus II Scanner offers tremendous quality 'repro-ready' scans from both reflective and transparent originals and the benefit of a full version of Adobe Photoshop 4 all for under £800! This new low price means that any graphics professional can SAVE thousands of pounds in scanning costs by doing the majority of their scans 'in-house'.
The bundled software also includes the acclaimed Agfa FotoLook utility which virtually guarantees a great scan every time by color correcting, cast removing, sharpening, de-screening and halftoning your scans 'on-the fly'.
A great bargain and a real productivity demon!

FotoLook

FULL V4 INCLUDED IN THE PRICE!

THE CW FEATURE CHECK

- 600 x 1200dpi optical resolution
- 2400dpi interpolated resolution
- Transparency hood included in the price
- 3.0 Density range ■ TWAIN compatible
- Comes with **Full Adobe PhotoShop v4**, Agfa FotoLook & FotoTune, FotoSnap
- Agfa FotoLook expert features include variable USM (Unsharp Mask), color cast removal, user-defined curves, halftoning, excellent de-screening, & negative scanning
- **A CW RECOMMENDED DESKTOP-REPRO SCANNER - AT AN INCREDIBLE PRICE!!**

WOW!

£799

EX VAT £938 INC

Photoshop supplied on CD with electronic manuals

AGFA ARCUS II FLATBED SCANNER

SCOOP PURCHASE! SCOOP PURCHASE!

HOW TO GET GREAT QUALITY SCANS

CW CALLS IT AS HE SEES IT

RESOLUTION

Resolution is purely how many times your original material is 'looked' at by the scanner in a square inch. If the resolution is 300dpi the scanner will effectively divide up a square inch of the original in to 300 x 300 pixels. If the resolution is 600dpi you get 600 x 600 pixels and so on. Basically, the higher the resolution the more pixels per square inch and hence more detail.
Resolution is often quoted in two ways, Optical and Interpolated (sometimes called enhanced). The Optical resolution is the 'true' resolution, the interpolated resolution is what the scanner can achieve by clever software 'filling-in' the other pixels.

ROUGH GUIDE TO SCANNING

FotoLook

Before you start - clean the scanning bed! A 'dust-free' zone means your scans will look better and it will save removing the 'spots' in your image editing software!

1. Determine the size the image will be printed and the line screen to be used (lines per inch - lpi)
2. Use the table below for selecting the correct scanning resolution

Note: for line art, scan at the top resolution of the scanner for clean, crisp line art.

3. Adjust the color curve in Photoshop or the scanning plug-in (Agfa plug-ins do a great job of this) to get a good color balance.
4. Apply the Unsharp Mask (USM) filter to sharpen the image. (Try 175% @ 1 pixel with a 10% threshold). - Agfa Arcus & DuoScan can apply USM while an original is being scanned.
5. Convert the image to CMYK and export to the page layout application. Remember to use clipping paths and the EPS file format for cut-outs.

SCANNING RESOLUTIONS

OUTPUT DEVICE	LINE SCREEN	LINE ART	CONTONE
Web Page	N/A	72dpi	72dpi
300dpi Laser	60lpi	300dpi	100dpi
600dpi Laser	90lpi	600dpi	140dpi
1200dpi Laser	150lpi	600-1200dpi	250dpi
Bureau Imagesetter	150lpi	1200dpi	300dpi
High quality			
Bureau Imagesetter	175lpi	1200dpi	320dpi

AGFA DUOSCAN

- TWINPLATE!
- 3.3 DENSITY RANGE!
- 1000 X 2000DPI
- 36-BIT COLOR
- A4 PREVIEW IN 7 SECONDS!
- FULL PHOTOSHOP V4 REAL QUALITY

SAVE ££'S @ CW!

Macworld ★★★★/8.2

£1999.00 EX VAT £348 INC

STUDIOSTAR

- 30-BIT SCANNING
- 600 X 1200 OPTICAL
- 2400DPI ENHANCED
- OPTIONAL TRANNY HOOD & ADF
- GREAT BUNDLED SOFTWARE INC. PHOTOSHOP LE!

SAVE ££'S @ CW!

YOU CAN'T BUY BETTER!

£389.00 EX VAT £457 INC

Macworld ★★★★/8.1

SNAPSCAN 600

- 30-BIT SCANNING
- 600 X 1200 OPTICAL
- 4800DPI ENHANCED
- OPTIONAL TRANNY HOOD
- GREAT BUNDLED SOFTWARE INC. COLOR-IT!

SAVE ££'S @ CW!

YOU CAN'T BUY BETTER!

£249.00 EX VAT £293 INC

SNAPSCAN 310

- 30-BIT SCANNING
- 300 X 600 OPTICAL
- 4800DPI ENHANCED
- OPTIONAL TRANNY HOOD
- GREAT BUNDLED SOFTWARE INC. COLOR-IT!

SAVE ££'S @ CW!

YOU CAN'T BUY BETTER!

£139.00 EX VAT £163 INC

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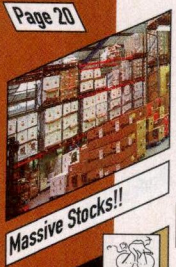

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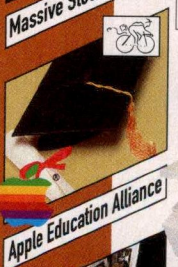

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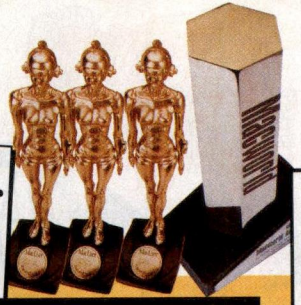

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Your data is your work and it simply isn't worth losing. Storage is as important as the job itself, that's why CW Storage Solutions have been designed around the highest quality components. Power supplies that are up to the job - software which is easy to use and fully featured. By choosing CW Storage Solutions you not only get all this, but superbly designed multi-bay enclosures which keep your data and libraries within easy reach.

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With a SCSI-3 accelerator, creativity doesn't have to wait for data or graphics. Adaptec accelerators bursts data on the SCSI bus up to 40 MByte/sec (2940) & 80 MByte/sec (3940 - two channels), so users can exploit new, faster SCSI devices. And take full advantage of the fastest way today to get data between the CPU and SCSI peripherals. A SCSI accelerator boosts overall system performance, too. Advanced SCSI features free the CPU for other tasks and, as a result, drive down response times and drive up productivity.

All the right connections
The Ocean Drive SCSI accelerator lets you take advantage of other Fast, Wide, and UltraSCSI-2 peripherals to get data quickly. But that's not all. It simultaneously supports your legacy SCSI-1 and SCSI-2, peripherals without slowing down the fastest devices. In fact, you can connect as many as 30 SCSI devices (with the twin channel 3940 - 15 with the 2940) in any combination, so you can keep workhorse devices in service while you add the hot new performers.

Simple installation
Installing and configuring your accelerator equipped Ocean Drive solution is a snap. No jumper cables or switches to handle. Just plug the accelerator card into the PCI slot and run the easy utility software that's provided for customizing the I/O subsystem.

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DiskWorks accelerates your Mac's hard disk by 35% and by 100% in the case of RAID arrays. It allows you to configure almost every aspect of your storage systems. Usually retails for £129, yet CW bundle it FREE with all our hard drive solutions!!

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EVERYONE'S GOT ONE SO WHY NOT YOU?

zip Plus drive 100
scsi or parallel port

CW PRICE INCLUDES CARTRIDGE & CABLE!

What more can you say about the Iomega Zip drive. It's by far the most popular high-capacity storage device around, it's cool, it's handy, Many Macs and PC's come with one built-in and CW loves it! This NEW version of the Zip drive comes complete with Parallel and SCSI ports with AutoDetect circuitry so you can easily connect the same drive to a Mac or a PC!
The Zip is trendy yet traditional, insouciant yet sensible. And a MUST for any computer user.
Use for backing up your graphics files, as an alternative to floppies for easy data storage and portable transfer!

THE CW FEATURE CHECK

Customer Benefits
- Ultra-easy to install and use
- Classic, trendy desktop design
- Ideal as a partner for your laptop - makes for easy transfer of files from a Mac desktop to a PC laptop!

Product Features
- 100MB Removable storage system
- Parallel & SCSI ports with AutoDetect

SAVE ££ AT CW!

GOSH!

£115 EX VAT

ZIP PLUS 100MB REMOVABLE STORAGE SYSTEM

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ZIP 100MB CARTRIDGES
INCREDIBLE VALUE £49.00 EX VAT

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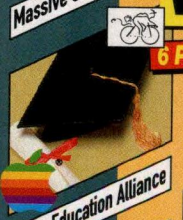
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3 PACK

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iomega JAZ 1GB

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MacUser Labs

jaz 1GB

Take Your Stuff With You - Jaz drives are the fastest way to store, transport, and use your computer stuff. Speedy access times and rapid transfer rates mean you can quickly and easily move files around. And the Jaz 1GB drive can handle even the most demanding usage, including video and multimedia applications. For example you can save up to 2 hours of CD-quality sound (compressed) or store 1,000 24-bit full color (450 x 750 pixels, 2x CD-ROM-quality) pictures!

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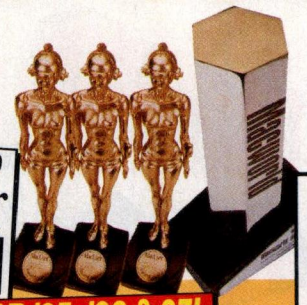

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"In Lab trials, the SyJet bested the Jaz drive by margins of 10 to 20 percent in four out of six key tests..."
Macworld Magazine 4 Stars

WOW!

Macworld ★★★★

SyJet 1.5 GIGABYTE

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HIGH CAPACITY STORAGE SOLUTION

SyJet 1.5 GB, the Professional Solution, is CW's recommended and award-winning high performance removable cartridge hard drive. With enough capacity to hold over 1,000 floppies-worth of data on one 3-ounce cartridge your options are unlimited!
Unlike some other removable systems, you get terrific performance with speeds rivalling hard disk drives - this makes the SyJet ideal for AV applications.
SyJet can easily backup your laptop or system in minutes and provides probably the ultimate system for transferring large files to and from output bureaux.
SyJet is the obvious choice for professional musicians, digital video editors, graphic designers, webmasters, desktop publishers, presenters and gamers.

THE CW FEATURE CHECK

Customer Benefits
- Easy to install and use
- Sleek, lightweight, portable design
- Take entire applications to and from work, home or studio without a laptop

Product Features
- 1.5GB Removable storage system
- Transfer data at 6.9 MB per second!
- 12 msec access time rivals hard disk drives!

"If hard drive expansion is your goal the sprinty SyJet is tough to beat."
PC Computing Magazine: 5 Stars

"the advantage of higher capacity ..is a fast, well-priced removable drive."
MacWEEK 4 Diamond Rating

"The SyJet we tested attained the best scores overall on our tests."
PC MAGAZINE Editor's Choice Award

"The SyJet has to be top of your shopping list."
PC Pro Quality Award

£199

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The award-winning, entry-level removable cartridge hard drive! If you want high performance in a value-priced, lower capacity solution- the EZFlyer is for you. Offering 230MB of capacity, EZFlyer can easily backup your key files in minutes.

CW FEATURE CHECK

Customer Benefits
- Easy to install and use
- Sleek, lightweight, portable design
- Inexpensive cartridge pricing

Product Features
- 230MB Removable cartridge system
- Transfer data at 2.4 MB per second!
- 13.5 msec access time rivals hard disk drives!
- Compatible with all EZ135MB cartridges!

£99.00

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SYQUEST EZFLYER REMOVABLE STORAGE SYSTEM

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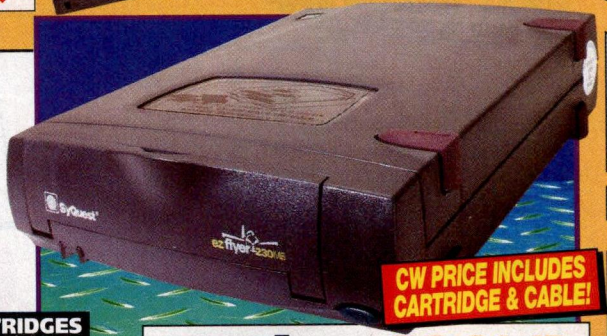

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EZFlyer 230MB

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X2 56Kbps modem

Sportster® Flash

CW FEATURE CHECK

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- Flash memory upgradeable
- Full Duplex Speakerphone
- Personal Voice Mail: 10 mailbox voice mail
- Facility to send and receive faxes
- Call discrimination: fax/data - fax/voice
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- Mailbox security
- Touch sensitive volume control
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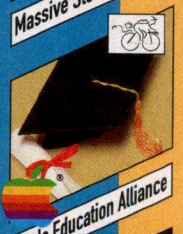
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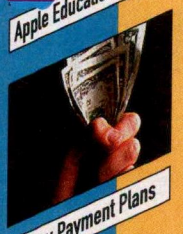
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64Mb EDO DIMM 168pin 5 Volt (Power Mac 5400, 6400, 5500, 6500, 7300, 7500, 7600, 8500, 8600, 9500, 9600)	£89.00
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32Mb RAM UPGRADE (PowerBook 1400)	£89.00
16Mb RAM UPGRADE (PowerBook 3400, PowerBook G3)	£49.00
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128Mb RAM UPGRADE (PowerBook 3400, PowerBook G3)	£249.00

16MB DIMM..... £29 5V DIMM £41 INC. VAT

32MB DIMM.. £49 5V DIMM £58 INC. VAT

64MB DIMM.... £89 5V DIMM £105 INC. VAT

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STUNNING DESIGN AND ULTRA AFFORDABLE

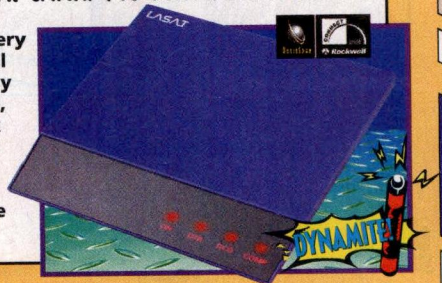
LASAT develop and manufacture a range of quality modems utilising the latest technology and encompassing innovative and fresh design parameters.

LASAT modems give CW the freedom to communicate as he likes. Designed by the world famous Danish stylist Jacob Jenson (Bang & Olufsen) they offer blistering performance and 'install it & forget it' reliability.

Take the Safire 336 Voice modem which has been voted a MacUser Best Buy. It's a powerful designer modem with voice facilities for telephone-answering machine, voice response and SVD (Simultaneous Voice & Data).

With LASAT modems, CW is ensured a very high performance as well as operational reliability. The modems naturally comply with the latest technology. For instance, the Safire 560 Voice is based on K56flex technology and it's Flash upgradable to the forthcoming ITU-standard.

All LASAT modems come with free life-time support and all necessary software and cables.



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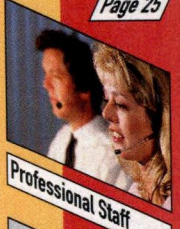

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- **Windows 95 pre-installed!!**

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WINDOWS 95 PRE-INSTALLED!

DOS VERSION ALSO AVAILABLE!

Macworld ★★★★/8.5

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IT'S THE 'WORKS'!

The NEW ClarisWorks Office is the ultra-efficient, cross-platform software designed for the small business and giving you powerful, integrated applications in one, compact program with ultra-low memory and CPU requirements. Tools for word processing, spreadsheet, database management, basic desktop publishing and web page publishing are all included. CW recommended for all business professionals.

- Combine text, spreadsheets, charts & graphics on same screen - easily!
- 230 excellent templates!
- Create documents for the web
- Email capability and management
- Superb drawing with unique art libraries packed with useful clip art
- Compatible with other popular 'office' programs

WORD PROCESSING
DRAW + PAINT
DATABASE MANAGER
PRESENTATION
SPREADSHEET
EMAIL & WEB TOOLS

£79.00 EX VAT £93 INC. VAT

INCLUDES CLARISWORKS 5!

HOT PRODUCT!

INTEGRATION
INSTANT AND INTEGRATED ACCESS TO ALL FEATURES & FUNCTIONS FROM WITHIN THE 1 APPLICATION AT THE SAME TIME!!

MAC OS 8

UPGRADE NOW!

It's a whole new Macintosh experience. Native, multi-threaded Finder for lightening fast operation & simultaneous multi-tasking.

- Integrated Internet access - it's never been easier to browse, communicate & publish on-line
- QuickTime™ Media Layer MPEG
- Easy sharing of disks & files with Windows 95, 3.1 & DOS

£59.00 EX VAT £69

MAC OS 8 OPERATING SYSTEM

The New MacOS look & feel is simple, attractive & very effective.

EXPLORER INCLUDED

NORTON UTILITIES

No Mac should be without Norton Utilities. This package provides all the protection you need against hard drive problems by pro-actively preventing crashes and alerting you to potential problems. Included is Speed Disk - the best disk optimizer!

SAVE £££'S @ CW!

NORTON UTILITIES 3.5 ESSENTIAL SOFTWARE £59.00 EX VAT

YOU CAN'T BUY BETTER!

META CREATIONS PAINTER 5 £219 SAVE £££'S @ CW!

V4 RETROSPECT £69 SAVE £££'S @ CW!

DIRECTOR MULTIMEDIA STUDIO £819 SAVE £££'S @ CW!

GOLIVE CYBERSTUDIO £189 SAVE £££'S @ CW!

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Massive Stocks!!

Apple Education Alliance

Easy Payment Plans

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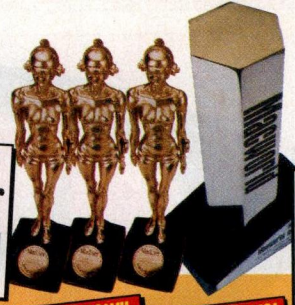
This is... computer warehouse

"I'm looking good and I'm feeling great and it's all due in part to Office 98!"

Authorised Reseller

QUAD AWARD WINNER, VOTED MacUser Macworld



HURRY - BUY NOW!! NEW AT CW!! PLACE YOUR ORDER TODAY! HURRY - BUY NOW!! LIMITED STOCKS!

MICROSOFT OFFICE 98

INCREDIBLE NEW VERSION

Microsoft Office Office has evolved from separate stand-alone products into a highly integrated set of productivity applications and Office 98 Macintosh Edition is the most significant release of Office ever on the Mac platform.

GET BETTER RESULTS WITH LESS EFFORT. Office 98 Macintosh Edition makes it easier than ever before to achieve brilliant results with interactive assistance from the Office Assistant, Word Table Drawing Tool, Natural Language Formulas and more.

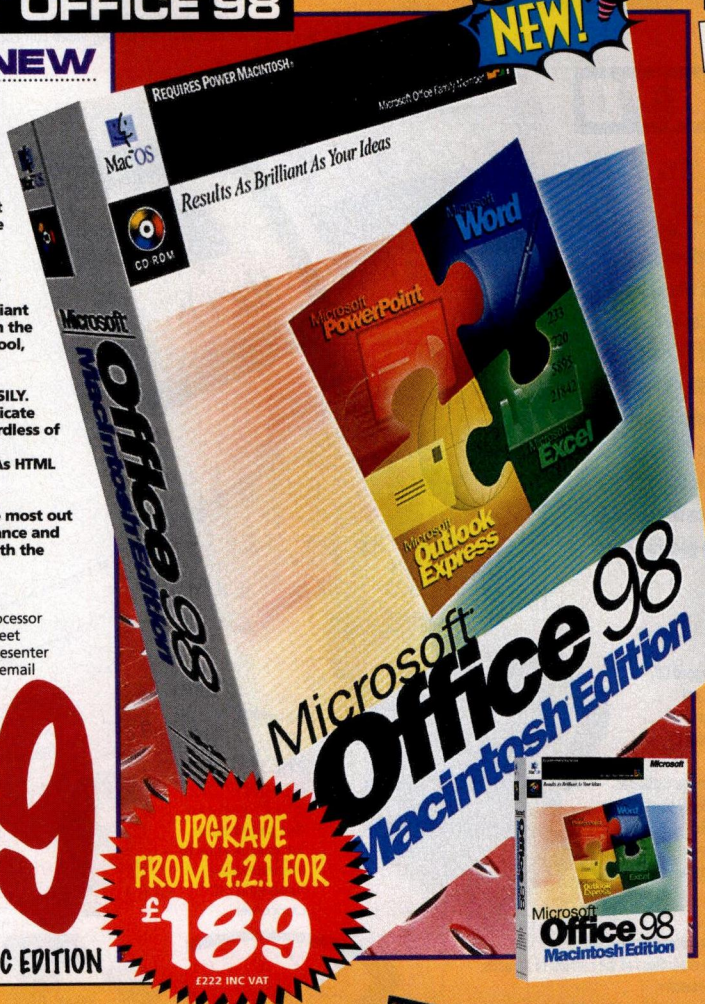
COMMUNICATE AND COLLABORATE EASILY. Office 98 allows you to easily communicate and collaborate with other users, regardless of operating system using Excel Shared Workbooks, In-place comments, Save As HTML and more.

Office 98 is designed to let you get the most out of your PowerMac with a new appearance and behaviour that is tightly integrated with the MacOS.

PACKAGE INCLUDES

- **Microsoft Word 98** - Ultimate Word Processor
- **Microsoft Excel 98** - Ultimate Spreadsheet
- **Microsoft PowerPoint 98** - Ultimate Presenter
- **Microsoft Outlook Express** - Ultimate email

NEW!



£349

EX VAT £410 INC

MICROSOFT OFFICE 98 MAC EDITION

UPGRADE FROM 4.2.1 FOR £189 £222 INC VAT

ILLUSTRATOR 7

3 CD's FREE ADOBE ACTION PACK

WOW!

Yes - For a limited time only CW is offering Illustrator 7 (& Pagemaker 6.5) with the Adobe Action Pack which includes 3 CD's packed with Clip Art, Animated GIFs, Typefaces, Stock Photographs, Training videos, Tips & Tricks, Plug-ins & a whole lot more.
Hurry - this offer is for a limited time only!

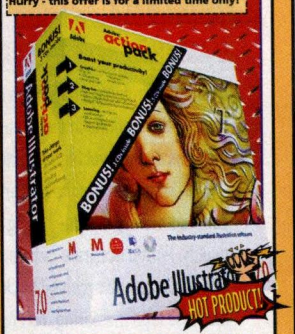


ILLUSTRATION STANDARD

The CW recommended tool for creating sophisticated artwork, technical illustrations and innovative designs for print, web & multimedia. Superb typographic control. New version 7 has been re-designed with a PhotoShop 'look & feel'. - Excellent!

- New Adjustment Layers let you experiment with color correction & effects
- Tabbed pallets
- Image Linking
- Create image maps for the web with URL's
- Now with RGB color support
- Drag and Drop artwork to & from PhotoShop

£249

EX VAT £295 INC. VAT

ADOBE ILLUSTRATOR + ACTION PACK

computer software warehouse

MacOS systems, scanners, storage, graphic arts software, multimedia, video & audio post production solutions

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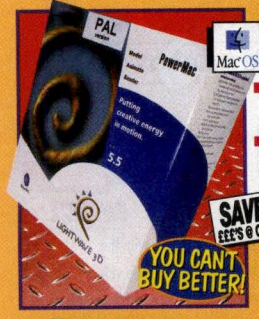


LIGHTWAVE 3D

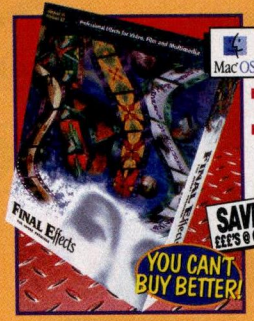
- LightWave 3D 5.5's streamlined user interface provides a highly interactive workspace for animators
- Includes real-time texture mapping, non-modal environments and user-definable interface color and configuration

SAVE £££'S @ CW!

YOU CAN'T BUY BETTER!

LIGHTWAVE 3D VIDEO EFFECTS

EFFECTS FOR VIDEO £1695 EX VAT



FINAL EFFECTS AP

- Allows you to make immediate creations straight out of the box
- Particle generators, distortions, stylistic effects, transitions, and color controls allow users to design impressive effects for video, film or multimedia content at an affordable price

SAVE £££'S @ CW!

YOU CAN'T BUY BETTER!

FINAL EFFECTS AP

EFFECTS FOR VIDEO £89.00 EX VAT

FINAL EFFECTS

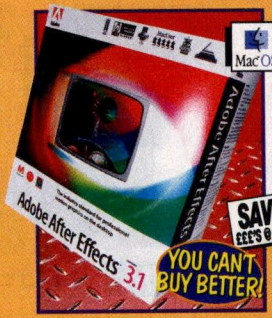
- Advanced particle systems for creating complex smoke, fire, rain, confetti, gas particles and incredible explosions
- Extremely fast rendering allows for experimentation
- Quality effects that are essential tools - not just tricks

SAVE £££'S @ CW!

YOU CAN'T BUY BETTER!

FINAL EFFECTS VIDEO

EFFECTS FOR VIDEO £299 EX VAT



ADOBE AFTER EFFECTS

- Industry standard post production video effects
- Plug-in architecture allows for easy customisation
- Broadcast quality output of amazing special effects
- Especially used for on-air promos, music videos, commercials etc.

SAVE £££'S @ CW!

YOU CAN'T BUY BETTER!

ADOBE AFTER EFFECTS

EFFECTS FOR VIDEO £499 EX VAT

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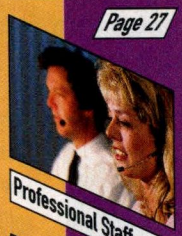

Professional Staff

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Page 28

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Authorised Reseller

DV & Analog Capture

Tokyo gives the best of both worlds. DV capture (via the Radius MotoDV) when used with the Sony DSR-PD1P and analog video capture (Miro DC-30) for capture from conventional analog video camcorders.

BUY NOW PAY 6 MONTHS LATER DEPOSIT REQUIRED

MacOS TOKYO

DIGITAL/ANALOG VIDEO CAPTURE

Designed for demanding video enthusiasts who require the ultimate in quality and whose lifestyle requires a small yet high quality camera.
The Tokyo harnesses the power of DV, permitting complex editing and re-editing with no loss of quality. Frame accurate cuts and stunning special effects can all be archived back to DV tape for loss less tape mastering. Full Apple Quick Time compliancy allows the use of the same special fx software that professionals use to generate the broadcast quality visuals.

Boxes shown for illustration purposes only. Software comes preinstalled or on CD. Shown with optional monitor

CVW SPEC CHECK

200MHz MacOS Mini Tower Computer
- 64MB RAM, 2.1 IDE GB Hard Drive, 24x speed CD, 512K Cache, 6.4GB SCSI Drive, SCSI-3 card
- Radius Moto DV Firewire I/O (Digital capture)
- Miro DC-30 full-motion video card (Analog Capture)

Sony DSR-PD1P Sony Digital camcorder
- Firewire out AND in, 20x optical zoom, Image Stabilizer, built in colour 2.5" LCD display, 1/3" 810,000 pixel CCD
- Freehand Graphic Studio software bundle
- Adobe Premiere LE video editing software
- Painter v4 + PhotoShop LE image editing software

MAIN FEATURES

- The highest quality ever seen in the "pro-sumer" price band.
- No compromise editing - no quality loss regardless of the number of re-edits.
- Infinite and cheap archiving of finished masters.
- Device control of DV Cam allows easy library building of useful shots.
- EDL export for off line editing
- "out of the box" digital studio
- Mac OS makes it easier to use

SONY DSR-DP1P Digital Camcorder

See page 8 for a full specification of this incredible hand-held DV camcorder.

24x Speed CD

USE THIS SYSTEM FOR

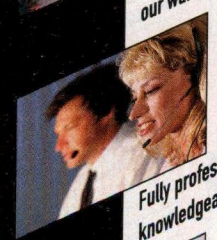
- ✔ Home/enthusiast/multimedia use
- ✔ Video diaries/documentaries
- ✔ Off line editing
- ✔ Video for the internet or CD-ROM
- ✔ Corporate video productions

£3999

tokyo video digital/analog capture

£4699 inc VAT

Huge stocks in our warehouse



Fully professional, knowledgeable staff

Visit our web site www.compuw.co.uk

MacOS TOKYO G3

SONY DSR-PD1P DV CAMERA INCLUDED!

DV CAPTURE ON APPLE'S FASTEST MAC!

The Tokyo G3 solution offers the ultimate in DV video capture and editing. Complete with the 'oh I must have one' Sony DSR-PD1P DV camera and featuring Radius MotoDV FireWire video capture board and the excellent Radius EditDV high performance non-linear editing software this system just oozes power. Everything you need to edit and re-edit without losing quality - this is the ultimate G3 DV video system.

Boxes shown for illustration purposes only. Software comes preinstalled or on CD. Shown with optional monitor

24x Speed CD

pc/mac drive zip

radius™

Radius EditDV

Professional editing and trimming controls. Unlimited layering, great character generation plus keyframable effects for compositing & animation control.

CVW SPEC CHECK

- PowerMacintosh 266Mhz G3
- 64MB of SDRAM (384 mb max)
- 512K backside cahce
- 6GB IDE Hard Drive + 6.4GB SCSI Drive
- 24x CD-ROM drive plus internal ZIP
- Adaptec SCSI-3 card
- Radius Moto DV Firewire I/O

Sony DSR-PD1P Sony Digital camcorder
- Freehand Graphic Studio 5.5
- Adobe Premiere LE & Radius Edit DV
- Painter v4
- PhotoShop LE

£4699

tokyo g3 video top dv solution

£5521 inc VAT

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camcorders

SONY DVCAM

BUY NOW PAY 6 MONTHS LATER

MINIMUM 10% deposit with nothing to pay for 6 months, then settle in full and pay no interest (APR 0%). eg Sony DSR-PD1P purchase price £1996.33 (inc vat). Deposit of £200.33 and pay balance of £1796 on or before due payment date, interest free or commence minium monthly payments of £75 at an interest rate of 2.2% per month (APR 29.8%).

Sony DVCAM
Use either Radius MotoDV or DV Studio to capture the gorgeous digital video these amazing cameras produce.

THE ULTIMATE DIGITAL VIDEO CAMCORDERS ARE HERE AT CVW!

This stunning new Sony DVCAM bristles with features which make it a 'must-have' for professionals and enthusiasts alike. Ultra-compact it offers a 2 1/2" colour LCD with advanced color viewfinder and uses active matrix technology to provide a clear accurate color image even in bright sunlight, a smart battery system lets you know the amount of power remaining, an A/D digital fader to black and the ability to capture 340 digital images with PVDM-40ME.

professional choice

Unlike the domestic Sony camcorder, the robust DSR-PD1P offers the features essential for broadcast and other professional applications. These include the ability to use DV CAM tapes which offer a wider and slower tape path, the support of locked audio whereby the picture and audio are compressed simultaneously for perfect sync, extended head life, and ability to record EBU standard timecode. In addition a DV IN port means you can keep your sessions completely in the digital domain!

BUY NOW PAY 6 MONTHS LATER

SONY DSR-PD1P FEATURES

- Incredible compact Sony DVCAM digital camcorder
- DVCAM format with DV IN/OUT for connecting to MotoDV, DV Studio etc
- 1/3rd-inch color CCD chip with 810,000 pixels special designed for use with the DVCAM™ format
- 2 1/2-inch color LCD flip-out view screen
- 20x Optical Zoom lens
- Super SteadyShot® picture stabilization
- DV In

SONY DSR-200P

- Compact & lightweight
- DVCAM format with DV IN/OUT
- Long operating time (six hours continuous)
- Excellent picture quality - 3CCD sensors
- AutoLock for automatic contrast of Iris/gain/shutter speed/white balance
- Super SteadyShot® picture stabilization
- Audio XLR connector for connecting professional microphones

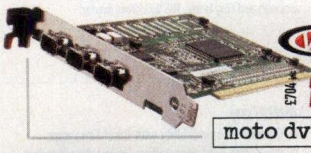
CW £1699
sony dsr-pdlp | video | dv camcorder
£1996 inc VAT

RADIUS MotoDV

Mac OS

ULTIMATE VIDEO TOOL

Turn your DV camcorder into a universal production tool leaving you to be as creative as your imagination will allow. Radius MotoDV offers you this cutting edge technology solution enabling you to achieve professional results at affordable desktop prices. Ideal partner for one of the new Sony DVCAMs (see page 8). Deck/Camera controls let you quickly and easily search and locate frames you wish to capture.



£704 inc CW £599
moto dv | video | dv solution

RADIUS EditDV

Mac OS

- Professional 3-point editing techniques in a non-linear, high performance environment
- Professional editing and triming controls
- Unlimited layering, great character generation plus keyframable effects for compositing & animation control

£939 inc CW £799
radius dvEdit | video | dv solution

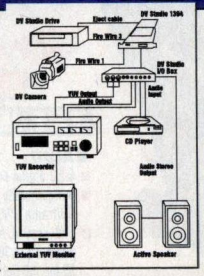
DV STUDIO 1364

Mac OS

BUY NOW PAY 6 MONTHS LATER

PROFESSIONAL DIGITAL EDITING!

The new DV Studio 1394 gives you the power to professionally edit Digital Video (filmed using a DVCAM) on your Power Macintosh.
With DV Studio 1394 video need only be recorded once, from the camera optics to the final cut, with no loss of quality. DV Studio 1394 enables professional video editing in real-time through the integration of Sony's DVBK-1 plug-on board. This means that the quality-destroying analog to digital conversion is a thing of the past!
Your results are displayed live on an external PAL video monitor. DV Studio 1394 can send your video via FireWire to a DV recorder or via the breakout box to an analog video recorder in YUV (component) or S-Video formats.



Edit your video material with software such as Adobe Premiere, adding fades, effects, titles and animations. However you will be editing video in pure DV Format all thanks to DV Studio 1394's on board hardware codec!

CW £2595
dvstudio | video | pro digital video
£3049 inc VAT

Top demonstration facilities in London

Service, upgrades & installations

Lots of ways to pay inc. easy payments

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Award Winners

Computer Warehouse are quad award winners having being voted 'Reseller of the Year' by the readers of MacUser for the past three years (95, 96, 97) and 'Dealer of the Year' by MacWorld in 1997.

CANNES G3

PROFESSIONAL VIDEO EDITING SYSTEM

The Cannes G3 is the first non linear editing solution to give professional quality video editing at a low end price. The combination of raw processing power, Media 100's Vincent 601 card and Adobe Premiere puts professional editing and special effects at your finger tips. Blisteringly fast rendering and unparalleled signal quality are at last affordable to the smaller video production company. Add to this the proven expansion path, up to the industry respected Media 100 LX editing system and the Cannes G3 becomes a vital investment for any up and coming video professional.

CVW SPEC CHECK

- Apple Power Macintosh 266Mhz G3
- 512k backside cache, 3 PCI slots
- 96MB RAM, Iomega Zip drive
- 6GB System Drive plus 6.4GB SCSI Drive
- Adaptec 2940uw SCSI-3 card, 24x CD-ROM drive
- Media 100qx Professional Broadcast Quality Video Capture Board
- Adobe Premiere 4.2.1

MAIN FEATURES

- True broadcast quality video editing - absolutely no compromise
- The fastest Mac yet means unparalleled video/price performance
- Upgradable to full Media 100 software
- Assisted rendering times
- QuickTime based for easy editing and incorporation of clips into multimedia
- 23 accelerated transitions
- Terrific multimedia and graphics software bundle

BUY NOW PAY 6 MONTHS LATER DEPOSIT REQUIRED

24x Speed CD

pc/mac drive zip

£3999

cannes g3 | video | the pro solution

£4698 inc VAT

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Fully professional, knowledgeable staff

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Freehand Graphics Studio 5.5

Includes all the software you need for illustration, font creation, image manipulation and 3D modelling, animation & rendering. The Graphic standard for print, multimedia & web graphics!

Premier 4.2.1

Simply the best digital video editing software around. Easily assemble video clips, stills and audio. Great transitions, fast assembly and easy to use. THE QuickTime master!

THE INCREDIBLE MEDIA 100 QX

Video

- 4:2:2 digital component signal processing
- Image quality to 250 KB/frame (NTSC) and 300 KB/frame (PAL), equates to 7.4 MB/second
- Full-screen, full-motion video capture and playback at 30 fps (60 fields per second) NTSC and 25 fps (50 fields per second) PAL
- S-video (Y/C) and composite video
- Clips can be compressed at different rates within a single program
- View or record 32-bit animations out to videotape in real time
- Genlock output for integration with larger video environments

Audio

- Playback of eight tracks of real-time audio
- 16-bit CD-quality audio I/O
- Audio simultaneously captured and sync to video

Effects

- Wide variety of transition effects
- 23 accelerated effects

Import/Edit

- QuickTime codec for "drag-and-drop" of Media 100 qx media files to other QuickTime apps
- Work with digital media on non-Media 100 systems with software codec

Editing

- Complete compatibility with QuickTime apps
- Real-time nonlinear editing for creative freedom
- Simplified editing keystrokes & intuitive interface
- Online video and Mac RGB display at all times
- Direct control of clips, editing, and effect creation in program timeline
- Video Previewer for viewing true colors of computer-generated graphics on PAL or NTSC monitors

With Media 100 qx, you get the industry's best image quality. Featuring Vincent video engine, Media 100qx also includes 23 accelerated transitions and compatibility with hundreds of QuickTime applications.

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audio solutions

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MARS 9600

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PROFESSIONAL DIGITAL MULTITRACK EDITING

Professionals the world over use digidesign's ProTools system for music, post production and broadcast. Turn on the radio,TV or visit your local cinema – audio produced using ProTools is everywhere. CW Mars is based around the new 24-bit ProTools system offering incredible audio quality and the ultra-expandable Power Macintosh 9600/350 which has 5 free PCI slots – perfect for adding DSP and extra 'Core' cards.

MAIN FEATURES

- Incredible 24-bit audio quality – you can't get any better than this
- 32 tracks – expandable by adding 'Core' cards
- 8 track I/O – expandable up to 72 tracks of discrete I/O
- Realtime Plug-in DSP effects – expandable by adding extra ProTools DSP cards
- Advanced automation with new ProTools software
- Complete and seamless integration of digital video & MIDI

CVW SPEC CHECK

- Apple Power Macintosh 9600/350
- (Upgrade to G3 from only £499!)
- 1MB In-line cache, 6 PCI slots (5 empty)
- 128MB RAM, Iomega Zip drive
- 4GB System Drive
- 24x internal speed CD-ROM
- 4GB Ultra-Wide Cheetah Drive
- Adaptec SCSI-3 card
- ProTools 24-bit system core
- ProTools 888 24-bit (8 track I/O)

24x Speed CD

pc/mac drive zip

Shown with optional monitor

PRO 24 TOOLS

£9995

UPGRADE TO G3 £499!

mars 9600 audio the pro solution

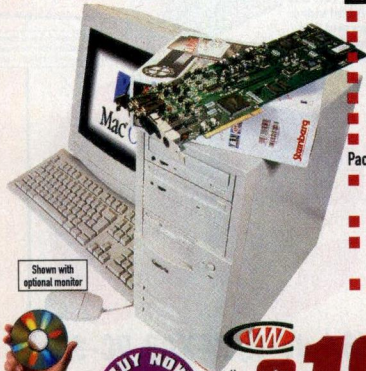
£11744 inc VAT

NASHVILLE

Steinberg

CVW'S BEST SELLING DIGITAL AUDIO / SEQUENCING BUNDLE

With the Korg 12 12 card installed, Nashville offers 12 inputs and 12 outputs configured as 2 analog I/Os, an S/P-DIF I/O and an 8 channel ADAT optical I/O with all I/Os available simultaneously. This makes it ideal for connection to a digital mixer & for editing complete 8 track ADAT sessions. In addition, the brilliant Cubase offers all the audio and sequencing facilities you could ever need.!



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- 200MHz PowerPC 604e processor
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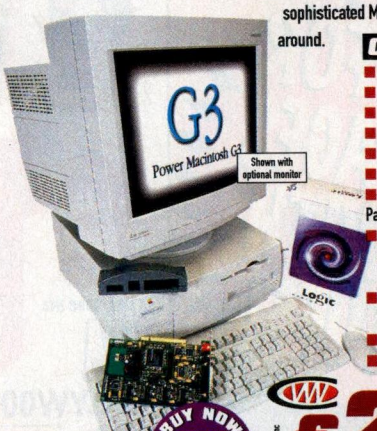

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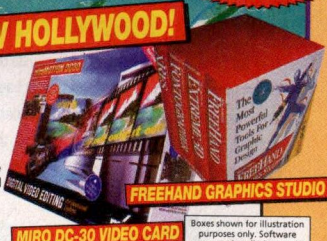

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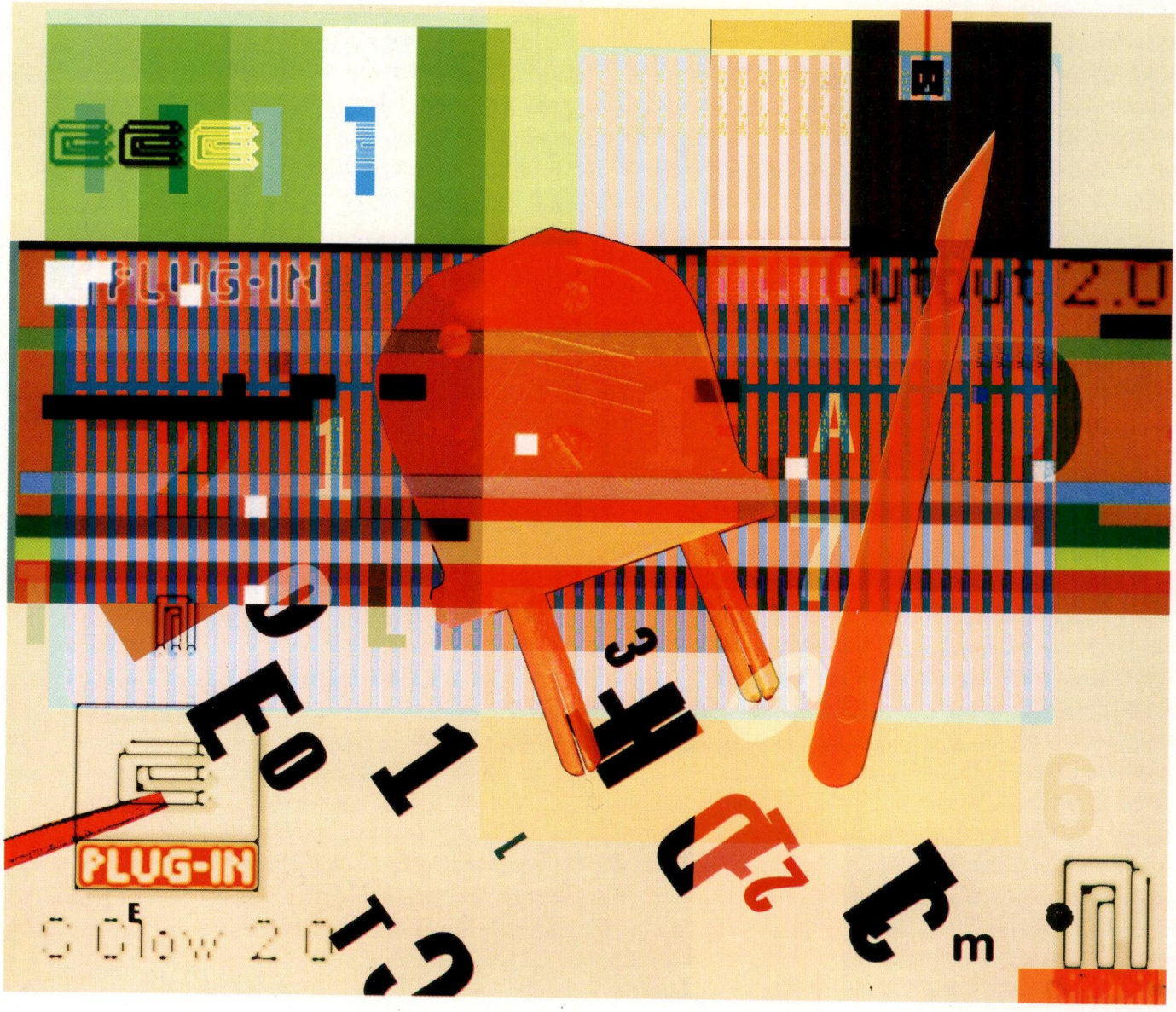
Peerless plug

Digit takes the labour out of choosing new tools to add to Adobe Photoshop. Find out our top buys and demo them on CDigit #1.

By Ian Winter



-ins

If the average digital artworker were to pass through a looking glass into a world without Adobe Photoshop, they'd be utterly lost. So fundamental is the program to most print and online imagery produced today that it's increasingly hard to imagine a world without it.

But much of Photoshop's strength isn't in the program itself, but in the plug-in tools that are supplied by Adobe, scattered at enthusiasts' sites across the Web, or provided by a growing band of creative companies whose only products are bolt-on Photoshop accessories designed to meet the needs of users in specific niches. There are now hundreds (maybe thousands) of plug-ins, and you could easily waste a week tracking down just the key products just to see if they'd make a difference to the quality of your work.

So we've saved you the trouble. On these pages we've attempted to give you a flavour of some of the major plug-ins available today, and tried to make it clear how each one could make a difference to your work. Some of them have been launched or upgraded only recently, while others have been around for three years or more and still serve a worthwhile function.

We've broken our list into three categories:

- Productivity tools – making everyday tasks quicker and more effective;
- Creative effects – going beyond convention with wild and weird bit-scrabbling; and,
- Web workhorses – helping you to get from true colour to online graphics.

While we've tried to track down the most important and interesting plug-ins, it's inevitable in such a large market that some will have slipped through the net, so check our list of Web sites if you want to keep up with the latest developments.

Illustration: Rachel Oxley

Productivity tools

A typical work session in Photoshop goes something like this: scan in some images; select portions of the scene and montage them together; paint in extra artwork such as shadows; adjust the image quality (colour, saturation, brightness); and then save.

Some of the most accomplished plug-ins help you out with these everyday tasks. For example, Extensis' Mask Pro is clearly the best choice if you need to do a lot of object selection – particularly if details such as hairlines, fur or blurred edges need to be included in your selection. There are other specialist tools in this area, including Chroma Graphics' MagicMask, but they don't match up to Mask Pro in terms of flexibility and straightforward professional quality (they are, however, cheaper). That said, there is another Chroma product, EdgeWizard, which is a valuable addition to any masking toolbox, as it has some excellent tools for cleaning up the more troublesome aspects of a selection using a fairly intuitive brushstroke approach.

If you don't need to take masking too seriously but would like some basic help on the subject, then a free plug-in called Kwick Mask is a very handy tool, allowing you to quickly select areas of colour for removing from a selection in a more helpful way than Photoshop's built-in Select Colour Range dialogue.

When it comes to adding 'classic' touches to your artwork, such as shadows, glowing edges, bevels and embossing, PhotoTools is unbeatable. It is extremely easy to use, particularly as it adds its own menu to the main Photoshop menu bar, through which you can access any saved PhotoTools settings to apply instant effects. Within the PhotoTools dialogue boxes themselves, you are given a fast, live preview of

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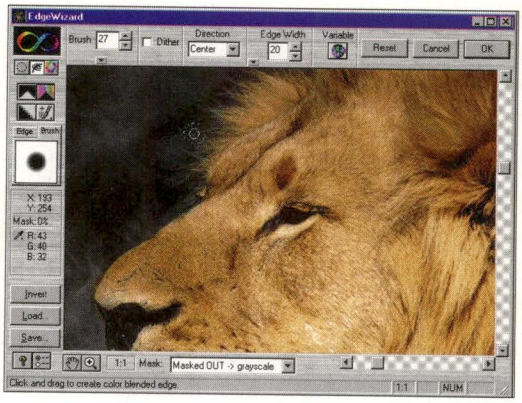
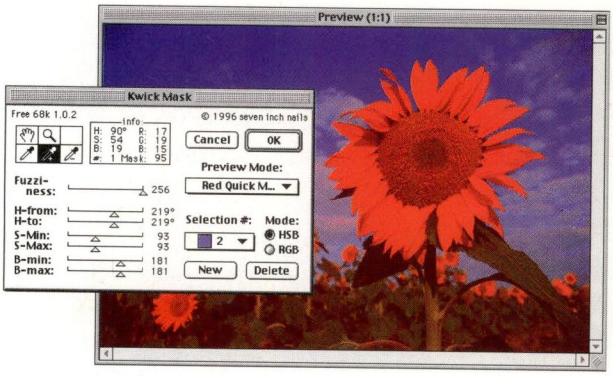
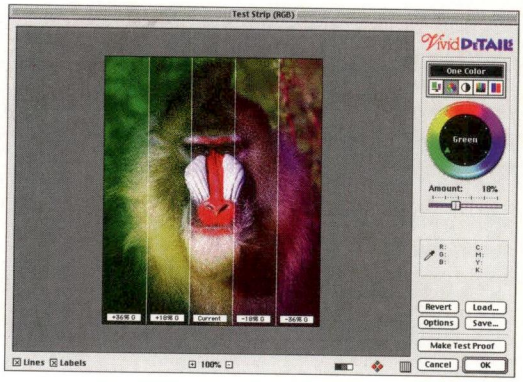


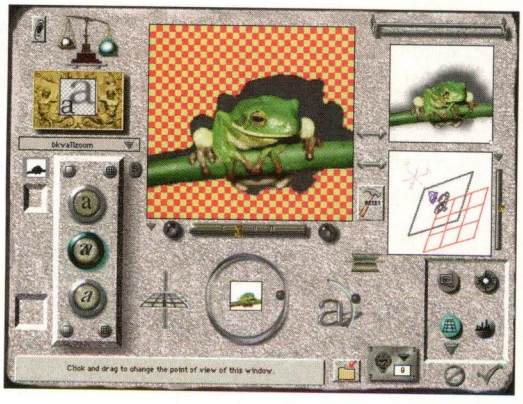
EdgeWizard
With a set of brush definitions that let you fine-tune the edge of a selection, EdgeWizard is a great improvement on Photoshop's standard QuickMask feature.



Kwick Mask
This excellent, free plug-in lets you quickly select areas for masking based on HSB or RGB values, and makes an appropriate selection for you.



Test Strip
With its extremely clear user interface and wide-ranging set of adjustment tools, Test Strip goes way beyond Photoshop's current Variations dialogue to give you an ideal environment for colour correction.



Andromeda Shadow
Can you have too much of a good thing? Andromeda's Shadow filter packs an immense amount of flexibility into creating drop shadows, but it's not for the casual user.

your entire image, and plenty of control over every aspect of the effects. What's more, PhotoTools includes a remarkable PhotoText module which lets you typeset entire paragraphs with mixed typography, colouring, kerning, and you can even save individual text instances so that you can re-edit the text later on. While it's not a fully functional text layer within your main Photoshop document, it's a huge improvement on Photoshop 4.0's woeful text features, and still has a few advantages over the planned text features in Photoshop 5.0. (Another plug-in dealing with type is Xaos Tools' TypeCaster, recently upgraded to version 2.0. This little gem quickly renders 3D text using a selection of light sources and surface textures. The quality of rendering is excellent, and the only drawback is the rather small preview area which restricts the ability to judge the relative sizes of text and background.)

Rounding off PhotoTools features is the PhotoButton system, which allows you to build button bars so that you can make any Photoshop activity into a single button-click.

PhotoTools shadow-casting features were until recently the best you could buy, but the recent release of Andromeda's Shadow plug-in has set a new standard. Shadow gives a mind-boggling level of control over shadow-casting, effectively giving you an entire 3D environment in which you can build lighting systems, perspectives and camera views so that the shadowing is atmospheric, realistic and highly flexible. Unfortunately, Shadow is one of those plug-ins where so much is on offer within a single interface that it quickly becomes confusing, and so it's not to be recommended unless you have a lot of shadow-building requirements and aren't daunted by a steep learning curve.

Photoshop has always been very good at dealing with colour quality – by which we mean colour balancing, brightness and contrast adjustment, and colour-shifting. However, a recent plug-in that manages to show Adobe a thing or two about building better interfaces to colour correction is Vivid Details' Test Strip.

It's fair to say that if part of your job is to ensure that the output you get from Photoshop has excellent colour quality, then Test Strip is an essential buy. It uses the traditional layout of (surprise surprise) a photo-lab test strip, with the image in question being divided into equal portions and a different colour correction applied to each. In this respect, it goes along the same path as Photoshop's Variations palette, but it offers much, much more, including the application of colour adjustments in 1 per cent increments, a full-screen preview of the image being corrected and, in a stroke of real-world genius, the ability to print the test strip directly to a colour proofer. In fact, there is very little colour and exposure adjustment work that cannot be done quickly and easily in Test Strip without using any of the standard Photoshop dialogue's at all.

Of course, not everybody has to fine-tune colour for press output. For those who get confused even at the basic level of Photoshop's

PhotoText lets you typeset entire paragraphs with mixed typography, colouring and kerning

own colour-correction dialogues, a set of alternatives is available in the form of Cytopia's PhotoOptics suite. These do much the same job as Photoshop's built-in tools, but make the process a lot clearer to the lay user.

Creative Effects

Each of these plug-ins stands in a category by itself, often taking Photoshop users into new territory. For many digital artists, having a huge number of creative effects filters counts as a badge of merit, but for the sake of being able to actually find your way around the Filter menu, it pays to be a little more selective.

All of these filters, which come at a variety of prices, should prove valuable to any user who wants to produce original, startling artwork. We've split our into two broad categories: low-cost shareware or freeware; and the more comprehensive shrink-wrapped offerings.

The cheapest of all are the totally free plug-ins. There are scores of these available on the Web, but of those tested the only ones that are worth the download time are:

- Greg's Factory Output – a large collection of experimental filters, some of which (such as Metal Effects and Splash) give excellent results
- Wacom's Pen Tools – these require a Wacom ArtPad, and include two excellent tools in Super Putty and the 3D Chisel
- the Sucking Fish Series – a disparate collection from Japan which include a neat, quick bevelling tool, some nice TV-style effects and a neat image-locking system which embeds a password into a scrambled image

Of the shareware plug-ins, we've found a handful that offer remarkable value, and which make the price of a product such as Mask Pro look ridiculously bloated.

For example, Flaming Pear's BladePro is only $25, and yet gives you a complete 3D rendering toolkit for bevelled button-shapes. You simply make a selection in the shape of the raised (or depressed) area you require, and then use BladePro to apply colour, surface texture, reflection maps, glossiness, highlight strength, and light sources. The features available here are more advanced than many full-blown 3D modelling programs, and are all presented within a

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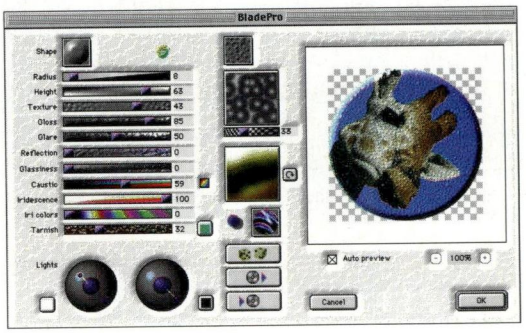
RetroScan
Dedicated to the single goal of making your image look like it's displayed on a cheap TV screen, RetroScan does a fine job at a low price.



Blade Pro
A valuable addition to any Photoshop installation, BladePro creates 3D, textured bevels with the full range of 3D-rendering techniques, including bump maps, reflection maps and 11 sliders to denote surface quality.

3D Chisel
Part of Wacom Pen Tools, which require a Wacom pressure-sensitive drawing pad, 3D Chisel adds an excellent new tool to Photoshop's armoury.

PhotoGlow
PhotoTools, of which PhotoGlow is a part, is a collection of fundamental effects, such as embossing, bevelling, glows and the invaluable PhotoText tool. It is easily one of the most essential plug-ins available.

Editor's Choices

Kwick Mask is an excellent, free plug-in lets you quickly select areas for masking based on HSB or RGB values, and makes an appropriate selection for you.

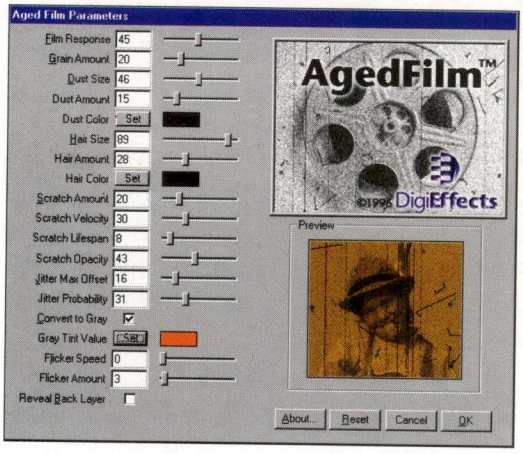
IT'S VERY DIFFICULT TO COMPARE plug-ins, simply because many of them do such idiosyncratic jobs that they're in a class of their own. All of the plug-ins we've covered achieve their aims very competently and, on the whole, are reasonably priced.

The best advice is to try before you buy. The plug-in market is unique in that practically all of the software on offer can be downloaded from the Web, either as shareware or in special demonstration versions. We have collected everything we could get our hands on for both Mac and Windows – check out the plug-ins folder on CDigit #1.

However, the products that most stick in our mind through their quality, ease of use, or the way that they extend Photoshop into vital new areas are:

- **PhotoTools** – bevelling, embossing, shadows and text may not sound too exciting, but they're fundamental to many Photoshop projects and PhotoTools does them superbly.
- **Eye Candy** – Individually, the tools in this collection are sometimes bizarre but always well-conceived; together, they are outstanding value.
- **Mask Pro** – The best masking tool by far, but remember to moan to Extensis about the price
- **Kai's Power Tools** – Still the most ambitious collection available, and hard to beat for breadth of features. Version 4 is out later this year.
- **Paint Alchemy** – Remarkable natural-media effects and a beautiful interface.
- **BladePro** – When it comes to bevelling, it's unparalleled (and incredibly cheap)
- **Furbo Browser Preview** – At first glance unexciting, but it does a widely-needed task extremely well.

It's clear that a handful of companies have consistently shown imagination, good quality-control and attention to the user interface, and so anybody interested in keeping up to date on the best plug-ins should visit their Web sites regularly. These companies are MetaCreations, Extensis, BoxTop Software, Alien Skin, Xaos Tools, Furbo Productions and Flaming Pear.



Aged Film
At £79 it's fairly expensive, but if the effect you're after is scratched, filthy and off-colour film stock, then Aged Film does a great job – and it's ideal as a plug-in for Premiere, too.

Paint Alchemy
Concentrating primarily on natural-media painting effects, Paint Alchemy's enticing interface give you infinite options and beautiful results.

In the spirit of always being first, MetaCreations released KPT Actions, the first add-on for a plug-in

single, easily-mastered interface. The same company also produces India Ink for $15, which specialises in applying strong black-and-white patterns to artwork to achieve an attractive woodcut effect.

Furbo Designer is a small collection of filters that at first glance don't appear to offer very much. Sporting fairly plain interfaces, the tools on offer here are deceptively powerful. For example, the marvellous Glowing Edges filter produces ethereal edge effects that make us smile every time we use them, and are unlike anything produced by other filters.

Our final low-cost choice is RetroScan. This has been around for a few years now, but the perfect way that it produces TV-interference effects has yet to be done anywhere else.

Heading into the realm of 'proper' software, our first choice is Aged Film – not because it is worth the money (by rights, it should be shareware as it is no more accomplished than BladePro), but because of the unique effect it produces. As its name suggests, Aged Film

converts your image to a duotone (sepia or otherwise) and adds all of the gunk (hair, scratches, dust) that is characteristic of old home movies. This filter is particularly good when used with Premiere, but is only available under Windows.

Terrazzo also produces an effect familiar from childhood. It takes a portion of your image and rotates it in one of 17 kaleidoscope patterns. We like it because it does such a neat job and, with the right original image, looks terrific; however, the £99 price tag is steep.

Cheaper and more useful is Andromeda's 3D Filter. This wraps your image onto a regular 3D shape (cube, cylinder, sphere or onto a flat plane) using a variety of light sources and a user-defined camera angle. In theory this is a powerful tool, particularly for quickly rendering packaging designs; sadly, it has a user interface from hell and so is a struggle to use effectively.

And so we're left with the four undisputed kings of creative plug-ins.

Eye Candy is a widely-used collection of 21 filters that range from such run-of-the-mill effects as interior bevels and shadows, through to a strange world of flaming selections, smoke and water-drops. Quality is high throughout, although there is a distinct lack of everyday effects that you get from the likes of PhotoTools.

If you're serious about creative work in Photoshop, then you probably already have

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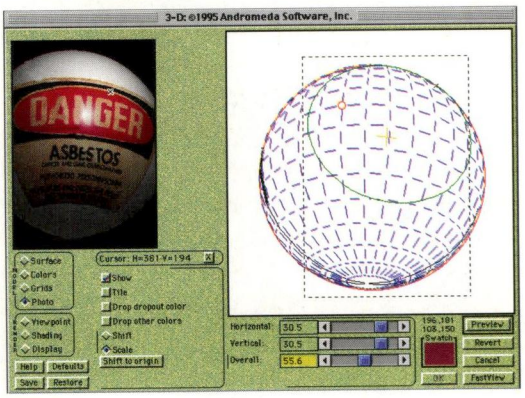
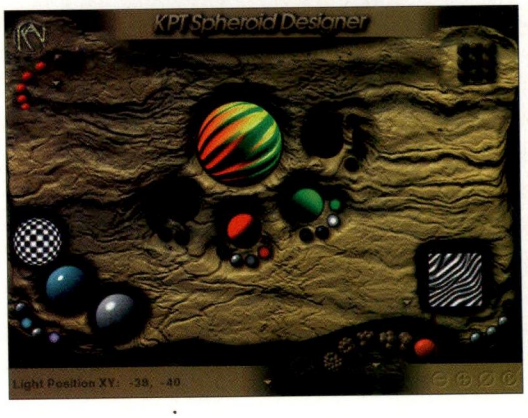
Andromeda 3D filter
Difficult to work with but powerful nevertheless, Andromeda's 3D filter projects your selection onto regular objects such as spheres, cylinders and cubes.



Terrazzo
Kaleidoscopic imagery is at hand with Terrazzo, which offers 17 different techniques for producing repeat patterns within your image.

Eye Candy
Alien Skin's Eye Candy collection is great value for money, combining a large collection of excellent effects (such as this "create fire" example) with an intuitive user interface.

KPT Spheroid Designer
Opinion is mixed on whether the idiosyncratic interface is a help or a hindrance, but there's no denying that Kai's Power Tools still sets the standard for imagination and creativity amongst plug-ins.



Bookmarks

WEB RESOURCES

If you want to keep track of the latest filters – especially all those for which free demos and shareware versions are available – then try this hit-list of Photoshop-friendly Web sites:

Image Alchemy
http://imalchemy.com/
Lots of general Photoshop tips and some recommended plug-in links.

The Plugin Head
http://pluginhead.i-us.com/plugin.htm
Excellent resource for plug-in information, with comprehensive resource lists.

PC Resources for Photoshop
www.netins.net/showcase/wolf359/adobepc.htm
Wide-ranging site emphasising Photoshop tools on Windows platforms.

Ultimate Photoshop
www.sas.upenn.edu/~pitharat/photoshop/
A little out of date now, but a useful resource nevertheless.

Dave Central Software Archive
www.davecentral.com/imageplug.html
Well-ordered resource of links to plug-in suppliers.

Where to **find** and **buy** the best Photoshop plug-ins

PLUG-IN	PLATFORM	PUBLISHER	URL	PRICE	CONTACT	
Aged Film 95	Win	DigiEffects	www.digieffects.com	£79	Aragon	0181 502 5522
Andromeda Shadow	Mac/Win	Andromeda Software	www.andromeda.com	$109	Direct	
Andromeda Three-D	Mac/Win	Andromeda Software	www.andromeda.com	$89	Direct	
Blade Pro	Mac	Flaming Pear	ccn.cs.dal.ca/~aa731/blade.html	$25	Direct	
ColorSafe	Mac/Win	BoxTop Software	www.boxtopsoft.com	$50	Direct	
EdgeWizard	Mac/Win	Chroma Graphics	www.chromagraphics.com	£110	Softline	0181 401 1234
Eye Candy	Mac/Win	Alien Skin	www.alienskin.com	£105	Principal	01756 704040
Furbo Designer	Mac	Furbo Productions	www.furbo-filters.com	$39	Direct	
Furbo Webmaster	Mac	Furbo Productions	www.furbo-filters.com	$39	Direct	
Greg's Factory Output	Mac/Win	Greg Schorno	mars.ark.com/~gschorno/gfo	Free	Direct	
HVS ColorGIF	Mac/Win	Digital Frontiers	www.digfrontiers.com	$99	Direct	
HVS JPEG	Mac/Win	Digital Frontiers	www.digfrontiers.com	$99	Direct	
ImageVice	Mac/Win	BoxTop Software	www.boxtopsoft.com	$50	Direct	
India Ink	Mac	Flaming Pear	ccn.cs.dal.ca/~aa731/indiaink.html	$15	Direct	
Kai's Power Tools	Mac/Win	MetaCreations	www.metacreations.com	£79	CU	0181 358 5857
KPT Actions	Mac/Win	MetaCreations	www.metacreations.com	£49	CU	0181 358 5857
Kwick Mask	Mac	Colleen's Fun Pack	pw1.netcom.com/~kawahara/ /photoshop.html	Free	Direct	
Mask Pro	Mac/Win	Extensis	www.extensis.com	$250	CU	0181 358 5857
Paint Alchemy	Mac/Win	Xaos Tools	www.xaostools.com	£99	Digital Toolbox	0181 282 8383
Pen Tools	Mac/Win	Wacom	www.wacom.com/pentools	Free	Direct	
PhotoGIF	Mac/Win	BoxTop Software	www.boxtopsoft.com	$45	Direct	
PhotoOptics	Mac/Win	Cytopia	www.cytopia.com	$99	Direct	
PhotoTools	Mac/Win	Extensis	www.extensis.com	£99	CU	0181 358 5857
ProJPEG	Mac	BoxTop Software	www.boxtopsoft.com	$99	Direct	
RetroScan	Mac	Deep Devices	ftp://3dsite.com/pub/3dsite/mac-sw/ plug_ins/retro-scan-10.hqx	$20	Direct	
Sucking Fish	Mac	Naoto Arakawa	ftp://3dsite.com/pub/3dsite/mac-sw/ plug_ins/SuckingFishFilters.hqx	Free	Direct	
Terrazzo	Mac/Win	Xaos Tools	www.xaostools.com	£99	Digital Toolbox	0181 282 8383
Test Strip	Mac	Vivid Details	www.vividdetails.com	£119	Adobe Shop	0131 458 6842
TypeCaster	Mac/Win	Xaos Tools	www.xaostools.com	£99	Digital Toolbox	0181 282 8383

Kai's Power Tools, which was one of the first major collections of Photoshop plug-ins, and it is still going strong. Like Eye Candy, it has its fair share of extremely innovative effects that you can't quite find a use for, but unlike Eye Candy it comes with plenty of high-end tools such as the Spheroid Designer, Gradient Designer and Texture Explorer. At £79, its also priced attractively.

In the spirit of always being first with new ideas, MetaCreations last year released KPT Actions, the first add-on for a plug-in. Actions is a set of script for Kai's Power Tools that produce some extraordinary ready-made effects that it might take the average user many hours to perfect. However, there are no really strong solutions to specific problems in Actions, and so it's only recommended for users who like to investigate the limits of their software.

Finally, Paint Alchemy is ideal if you want to add natural-media effects to an image. This plug-in specialises in repainting a selection using a huge collection of brush styles, with user-definable pint-coverage, colours, brush angles, brush sizes and paint opacity. A key strength is that Paint Alchemy automatically includes an element of randomness in all of its brushstrokes, and so the final artwork has a much more naturalistic feel. On the down side, Paint Alchemy does not let you do the brush-strokes yourself (it is a filter, after all, not a drawing tool), and so it is not a medium for creating original paintings from scratch.

For many digital artists, having a huge number of creative effects filters counts as a badge of merit

Web workhorses

Photoshop's role has been changing in the past three years. It was originally conceived as a platform for editing artwork destined for the printed page but has become, by default, the

tool of choice for users working on multimedia projects and Web site designs.

As a result, a collection of plug-ins has appeared to cater for this clientele's only special need: compressing their graphics to the smallest size possible, either as indexed-colour GIF files, or RGB JPEGs.

Of course, Photoshop has its own tools for doing this (there is a free GIF89a plug-in available from the Adobe Web site, www.adobe.com), and they do a reasonably good job, so it is only the super-keen or extra-fussy who will want to bother with these tools for squeezing the last few bits out of a file's size.

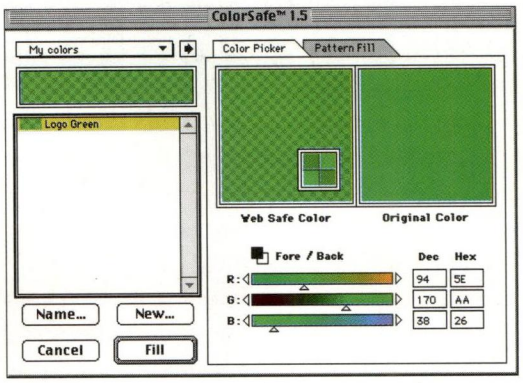
On the GIF side, the best choices are PhotoGIF and HVS ColorGIF, both of which offer you a wide range of palette and dithering options so that you can trade-off between image size and quality. The same two companies offer ProJPEG and HVS JPEG, too, with similarly competent size/quality trade-offs.

However, both are beaten in terms of ease of use and everyday functionality by a neat plug-in called Browser Preview. Not only does this show you the JPEG and GIF options in the same window, but it uniquely shows the likely appearance of your graphic on both Mac and PC platforms (PC monitors tend to be darker than Mac monitors, and so there is a tendency for Mac-based designers to build their Web sites too dark for PC users, and vice versa). Browser Preview, part of Furbo Webmaster, includes other tools for perfecting Web graphics.

Finally, a pair of utility plug-ins from BoxTop Software provide the ultimate in compression and in Web-safe colour palette usage. ImageVice has tools for adjusting the arrangement of colours in an image so that they can be compressed more effectively. If taken too far, this can make the image look awful, but if you really need to drop the file size, it is well worth investigating. ColorSafe also does a smart trick: it takes any colour you choose, and mimics it using a 2x2 pixel grid made up of Web-safe colours. By using this grid as a fill-pattern in place of the proposed original colour, it's possible to fake the use of any colour within a Web site, even when displayed on monitors only capable of 256 colours. ColorSafe is particularly good when, for example, you need to match corporate colours in a logo. ■

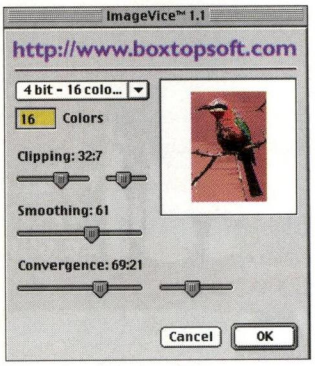
ColorSafe

A small but important task is performed by ColorSafe. It simply creates a four-pixel pattern to closely match any colour: the pattern uses only Web-safe colours, and so if you then use that pattern as a fill you know that the colours will appear correctly within Web graphics saved as GIF files.



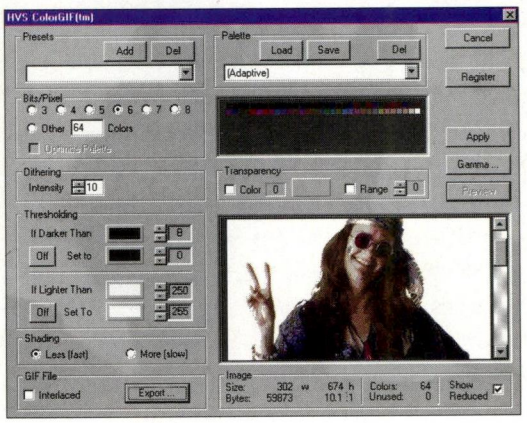
ImageVice

Sporting the world's most perplexing interface, ImageVice nevertheless does a great job of squeezing the maximum image compression into an indexed colour image. If you deal with large images that have to be small and you can't use JPEG, then it's a great tool.



PhotoGIF and HVS ColorGIF

Both of these plug-ins deal with the output of GIF images. PhotoGIF has the advantage of incorporating basic (but rather unhelpful) animation features, while HVS ColorGIF has a better all-in-one interface.



Which plug-ins will Photoshop 5 retire?

PHOTOSHOP 5.0, OUT LATER THIS YEAR, is loaded with new features and improvements. So if you're looking into buying more plug-ins now, it's best to ensure that they won't be superseded by features built into the new release. We can't go into detail here as we are bound by non-disclosure agreements. But it's safe to say that the majority of plug-ins will still be valuable after the arrival of version 5, as Adobe has not concentrated on extending Photoshop's image-filtering capabilities, but instead on improvements to the program's ease of use and effectiveness. Nevertheless, a handful of new features in version 5.0 are bound to take over the role currently performed by plug-ins. For example:

- New selection tools make it much easier to select objects in an image based on their contrast with the background, and so specialist tools such as Mask Pro will only be needed for very complex or subtle mask-production.
- New text tools will reduce the role of a plug-in such as PhotoText (part of the PhotoTools collection), but won't eliminate it: PhotoText offers much more comprehensive text-editing features that are unmatched in Photoshop 5.

One thing you don't have to worry about is whether the plug-ins you currently use will continue to work in Photoshop 5. They will, provided they are written using the standard Adobe plug-in rules. See our major preview of Adobe Photoshop 5.0 in issue 2 of *Digit*.

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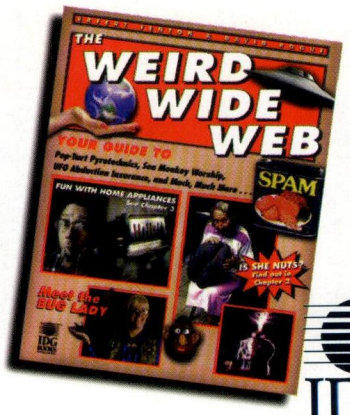

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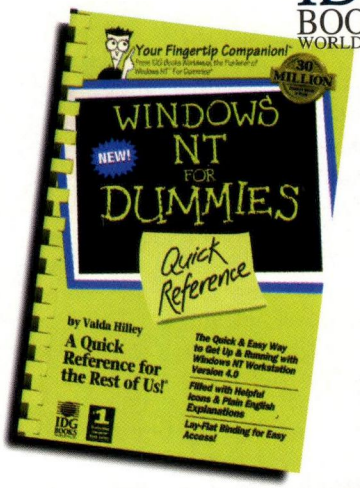

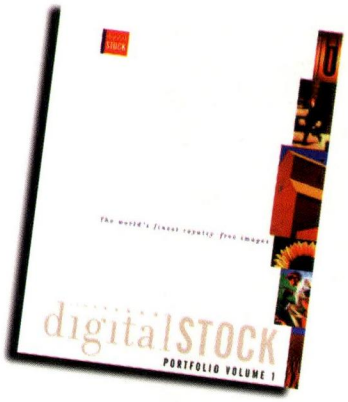

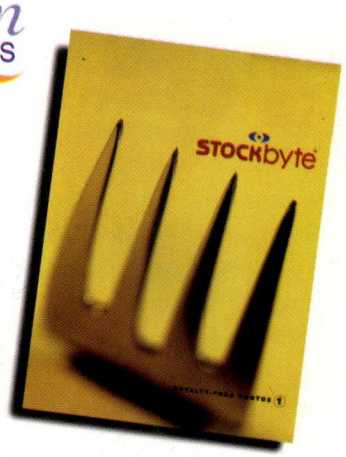

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invasion mega

By Mark Nichoson

Look out! They're coming soon to a desktop near you. Digit's guide to what to look out for when (not if) you buy a digital camera

Sure you've seen them: those cute consumer cameras with the little LCD panels and auto-everything gestalt. You may even have tried one and thought how nice it would be to e-mail those holiday pics to Mum and Dad. But for a graphics professional, there's no way these "toys" could mean business. Or could they?

The digital photography market is expected to reach $4 billion (£2.5bn) in the next three years (that's at a 58 per cent compounded annual growth rate, according to Lyra Research, a market-research firm in the US), and every manufacturer and its monkey are scrambling for a piece of the pie. Almost 100 digital cameras were introduced in the last year alone. Now, a new class of digital camera is emerging – one with sufficient pixel power at the right price to get the job done, whether it's a giant screen-sucking JPEG for your Web site or a print-quality 4-x-5-inch image for a catalogue. This month we'll take a look at the first wave of the megapixel invasion.

In focus

But first, are you ready for a film-free future? What are the benefits of digital photography and what are the practical implications (and applications)? For many professional photographers, digital cameras will never be good enough. Traditional silver-halide film is just too data friendly and cost efficient. Ever since digital cameras were introduced in 1991, though, their main advantage has been clear – instant gratification. No more waiting for the photo lab. No more Polaroid approximations. And because most images will be electronically edited anyway, no more time laboriously scanning prints and slides.

Although digital cameras that produce professional-quality images have been available in the high-end market for some time, not

of the pixels

everyone can (or wants to) drop 30 grand for a Leaf digital camera back. But in the past year and a half this price/quality correlation has started to change.

"My clients can never tell that an image was taken electronically," says Bob Michaels, a professional studio photographer.

Those clients include companies that are otherwise digitally savvy – Hewlett-Packard, Agfa, and Fargo Electronics. Michaels uses a Polaroid PDC-2000, which at a fraction of the cost of a high-end studio camera, is doing the trick with a 1,600-x-1,200-pixel resolution.

"You can't use the Polaroid for everything," he cautions. "If you need something to be absolutely perfect – for example, to highlight the details on a watch or a piece of jewellery – then, yes, you do need a traditional view camera. But this definitely has its place."

What Michaels, who has more than 20 years experience in photography, most appreciates about going digital is the flexibility it provides. "I can get what I want, especially with setups. I tether the Polaroid to my computer and I can

→

Olympus Camedia C-1400L
This SLR digital camera boasts an impressive 1,280-x-1,024-pixel resolution), and costs just over a grand.

see instantly on the screen what I'm getting," he says.

"I used to do most of my work with a Hasselblad," he continues, "but you just don't have the convenience that you do with a digital camera. The shoots are a lot easier to set up – and redo if necessary."

Michaels uses his PDC-2000 with a variety of lenses, extenders, and studio lights. "The built-in strobe can wash out a close object," he warns. But at less than £3,000, his investment has definitely paid off.

"Other than going super high-end with a scanning back for my Hasselblad, I'm not sure I would get any more quality for most of my typical jobs," Michaels concludes.

Do the maths

Many of the consumer cameras available thus far have typically pumped out a maximum resolution of 640-x-480 pixels. While that may be enough to post pictures of your pet iguana on your home page, for any kind of print work (except for newspapers, which can get away with a little less dpi), that's simply not enough data. To print a 4-x-5 photo at 133 lines per inch, you need to start with a minimum of 1,024-x-768 pixels. While not exactly at the megapixel mark (that is, 1 million pixels), it's a good start. Crank up the resolution another notch to 1,280-x-1,024 and, amigo, you're looking sharp.

Although many cameras now boast resolutions from 0.8 to 1.8 million pixels, they are also capable of storing images at lower resolutions, typically 640-x-480. Some have multiple options; the Agfa ePhoto 1280, for example, has three settings – maximum (1,280-x-960), medium (1,024-x-768), and low (640-x-480). Low-resolution options are more than a convenience; they're a necessity. Many digital cameras can store only 5 to 10 images at high resolution but can easily squeeze in 40 or more at lower settings.

The number of pixels a camera can capture is directly related to the size of its imaging array, the CCD- or CMOS-based sensor that's the big biceps of the camera's imaging muscle. The sensor is typically also the most expensive component in manufacturing, and it thus contributes the most ink to the price tag.

Original equipment manufacturers are currently debating whether CCD or CMOS is the superior technology. If you haven't heard the argument yet, here it is: essentially, CCDs – charge-coupled devices – are a proven, reliable, and well-understood technology that has served as the heart of digital cameras and camcorders since the 1980s. However, CCD sensors are notoriously greedy in their energy demands (hence the high battery drain of most digital cameras), and their complexity requires a separate manufacturing process from that of regular semiconductors.

CMOSs complementary metal oxide semiconductors on the other hand, are frugal with juice and relatively inexpensive to make. The downsides of CMOS sensors are their low light sensitivity and a high signal-to-noise ratio. However, recent developments – such as amplified arrays (to increase light sensitivity) and sophisticated DSP, or digital signal processor, algorithms (to reduce signal noise) have emerged, noticeably in the Vivitar ViviCams and Umax MDX-8000. Let's hope researchers keep at it. Don't expect the debate to be settled anytime soon Olympus is developing yet another alternative called the charge-modulation device (CMD).

Image quality is also dependent on colour bit depth, which tells you how much colour information the sensor can grab. At 24 bits, the most common bit depth in our category, each pixel records 8 bits of data for each of the red, blue, and green channels. The more bits, the more colour. However, don't be misled by the colour-depth spec alone. Colour in a camera (especially in this range) varies wildly with the quality of the optics, controlling circuitry, and

→

Sony Digital Mavica MVC-FD7
Sony is really pushing this odd-looking camera, with full-page ads in the newspapers. It's not a megapixel monster (just 640-x-480), but image quality.is still acceptable for £480.

Toyland

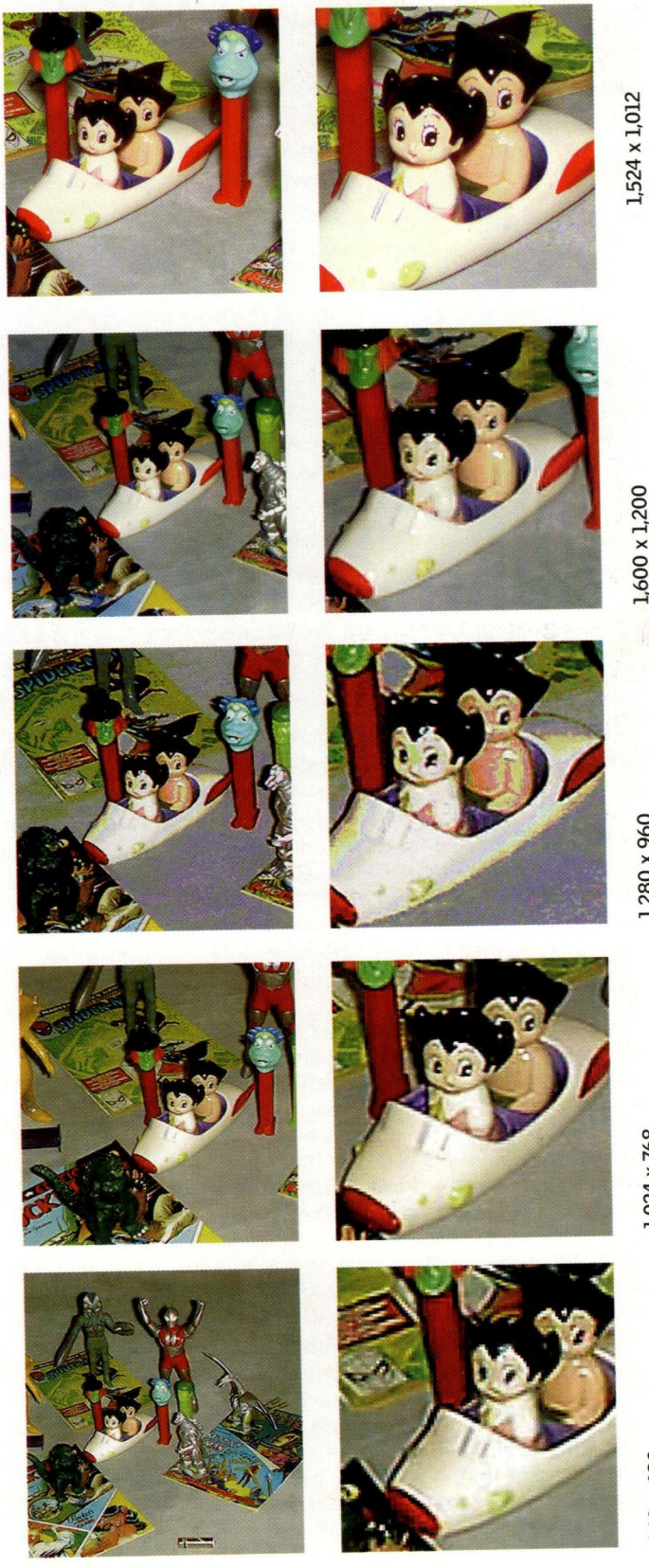
DO THESE "TOYS" REALLY MEAN BUSINESS? To find out, we took four megapixel cameras and squeezed their CCDs for all they were worth. We shot the same scene at a variety of resolutions: 1,600-x-1,200, 1,280-x-960, 1,024-x-768, and 640-x-480 pixels.

We have purposely not identified which samples came from which camera, so as to keep the focus purely on resolution. For comparison, we brought in a professional-level field camera, the £6,495 Canon EOS DCS5, which features a maximum resolution of 1,524-x-1,012 (top row).

Shown directly above is the full size of a 1,024-x-768 image after we changed its resolution to 250ppi to accommodate our 133lpi halftone screen. Of course, the image also underwent the usual Adobe Photoshop nips and tucks, such as minor cropping, a pinch of unsharp masking, and a nudge of gamma adjustment. While not particularly stunning, it gives an idea of what's possible even at the low end of the megapixel spectrum.

The left-hand column of images displays a portion of each photo at each resolution, again at full size at 250ppi. Notice that the 640-x-480 image (bottom) is full frame that's as big as we could print an image at that resolution. Obviously, higher resolutions make greater enlargement possible.

The column at far right shows the same effect in a different way enlarging each image to the same size shows how the image degrades at lower resolutions. A viewfinder problem caused the second picture from the top to be improperly cropped. The magnification, though, is consistent.



It's all in the cards

IMAGES ARE COMPRESSED IN A NUMBER of file formats, the most common being JPEG or TIFF. Squirrelling away the high-resolution files of these megapixel cameras can be a challenge, so storage is crucial. Onboard storage, if available at all, usually comes in the form of built-in RAM, 2MB on average. The Polaroid PDC-2000, however, is unique in that it offers an internal 20MB or 40MB hard-disk drive. Hard disks, though, are mechanically vulnerable and it's safe to say that dropping one is not a good idea. Solid-state removable storage is therefore essential, and in many ways the competition among storage technologies is as heated as the competition among camera vendors.

Currently, the big battle is being waged between SanDisk's CompactFlash (CF) card and Toshiba's SmartMedia card. CompactFlash was the earliest (1994) entry in the market, and a significant number of camera makers, including Canon, Kodak, and Epson, have since chosen CF as their "official" storage technology. Most often, these companies stick their own logos on the card; Kodak calls its 2MB and 10MB cards "Kodak Picture Cards," for example. CF cards are available in 2, 4, 10, and 15MB capacities, and SanDisk plans to ship 20MB and 30MB versions sometime this year. Although the technology behind the larger-capacity cards is very different, SanDisk claims that all of its cards will be backward-compatible so there will be no need to worry about obsolescence. Adaptors let you snap the CF card right into a Type II PC card caddy. To download images, you simply slap the entire thing straight into the PCMCIA expansion slot of your laptop.

Available in 2, 4, and 8MB capacities, SmartMedia cards are generally a bit cheaper and look like little flattened floppy disks. Like CF cards, SmartMedia cards have adaptors that let them be plugged in to a standard Type II PC card slot. There's also a lot of buzz about an upcoming caddy from Fisher International that will enable SmartMedia cards to be read in a regular old 3H-inch floppy drive.

Over the next year, expect to see other promising technologies, such as Iomega's Clik (a matchbook-size 40MB floppy disk) or even the Minidisc format from Sony (which apparently can hold up to 1,000 images). And expect prices to come down for all memory products.

analogue-to-digital conversion algorithms: in other words, from camera to camera. The only way to see how much a camera's colour will shift is to check it out for yourself. Go ahead and make the security guard at the store a little nervous – snap pictures like crazy, download them on to one of the computers there, and print.

Another spec to be careful of is ISO equivalency. In analogue photography, this is the speed rating of the film; the higher the number, the more light-sensitive the film is. Digital cameras don't have film, so this is not a concept that translates very well. ISO 100, which is what most vendors guess or arbitrarily assign the sensitivity of their cameras to be, is good for a nice sunny day.

This rating does not effectively reflect the camera's performance under different lighting conditions, especially indoors. Many manufacturers, such as Olympus, have different compensation routines, such as for scenes that are heavily backlit.

The bulk of these digital cameras will work well under typical conditions, whether indoors (especially because they all have a built-in flash) or outdoors.

Fujifilm DS-300
Another megapixel meastro (1,280-x-1,000), this camera would suit many professionals, but costs just under £2,000.

Zooming in on choice

No matter how high-tech some of these devices can get (the Vivitar ViviCam 3000 will even record four seconds of sound), a good camera still needs a good lens, and the good news is that your optical options are dramatically

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Agfa ePhoto 1280
Its megapixel (1,280-x-960) resolution is all the more attractive at just £650.

increasing. A year ago, zoom lenses were the exception on most consumer digital cameras. While they're not incredibly powerful, a lot of cameras we found have a 3x zoom that will go out as far as 150mm. Some cameras, such as the Fujifilm DS-300, the Epson PhotoPC 600, or any of the Olympus models, will even go the opposite way with special features for macro photography. At press time, the only camera with interchangeable lenses was the Polaroid PDC-2000, which like a conventional single-lens reflex will accept different lenses for wide-angle and telephoto photography. Agfa also nods to the more sophisticated user by including a 48mm screw mount for attaching filters and extensions to the lens of the ePhoto 1280.

Recognition that photographers like a degree of control in their work is likewise a welcome trend. Most artists would rather not take photos on autopilot. But consumers like convenience, so a few of these cameras try for the best of both worlds, with full automatic-exposure modes or a manual override of either shutter speed or aperture control.

Until recently, shutter speeds for digital cameras were a sticking point – a CCD simply needs more time to get its pixels together. Despite recent advances, you'll generally find

Olympus C-820L
Just shy of the megapixels, (1,024-x-768) this £765 Olympus has an useful 2-inch LCD viewer.

that the shutter-speed range of a digital camera is more limited than a film camera's.

In addition, a digital camera's limited memory and the lag time between exposures (the time it takes to write the image to disc) can also slow you down. Fuji Photo Film, however, offers a £595 "digital motor winder" for the DS-300 that lets you shoot up to 12 frames at 4H frames per second.

AAppetite

Before you go ahead and smile for the camera, you might want to think about a number of other considerations.

Digital cameras are notorious for their insatiable appetite for batteries. Swapping out a new set of AAs every few hours is not uncommon, especially for first-time pixel paparazzi who find that the ease of a digital camera encourages them to take more pictures than they normally would. The main drain comes from the CCD sensor, but the LCD panel on the back of most cameras is also a big energy sink. Using a camera's optical viewfinder and keeping the LCD turned off for all operations except playback will save some juice.

Some cameras, such as the Fujifilm DS-300 and the Polaroid PDC-2000, forgo LCD playback panels altogether. The Agfa ePhoto 1280, however, has no optical viewfinder. Agfa uses a hinge mechanism so that the lens can swivel independently of the LCD panel – kinda fun the first couple of times, but ultimately a costly inconvenience.

To help lower the ownership costs, Agfa bundles rechargeable batteries and a charging stand with the ePhoto 1280. Epson and Fuji Photo Film have adopted similar strategies. If the idea of rechargeables jolts your jollies, you should know that nickel metal-hydride (NiMH) batteries have an advantage over their nickel cadmium (NiCd, or nicad) counterparts in that they do not have to be drained completely before recharging.

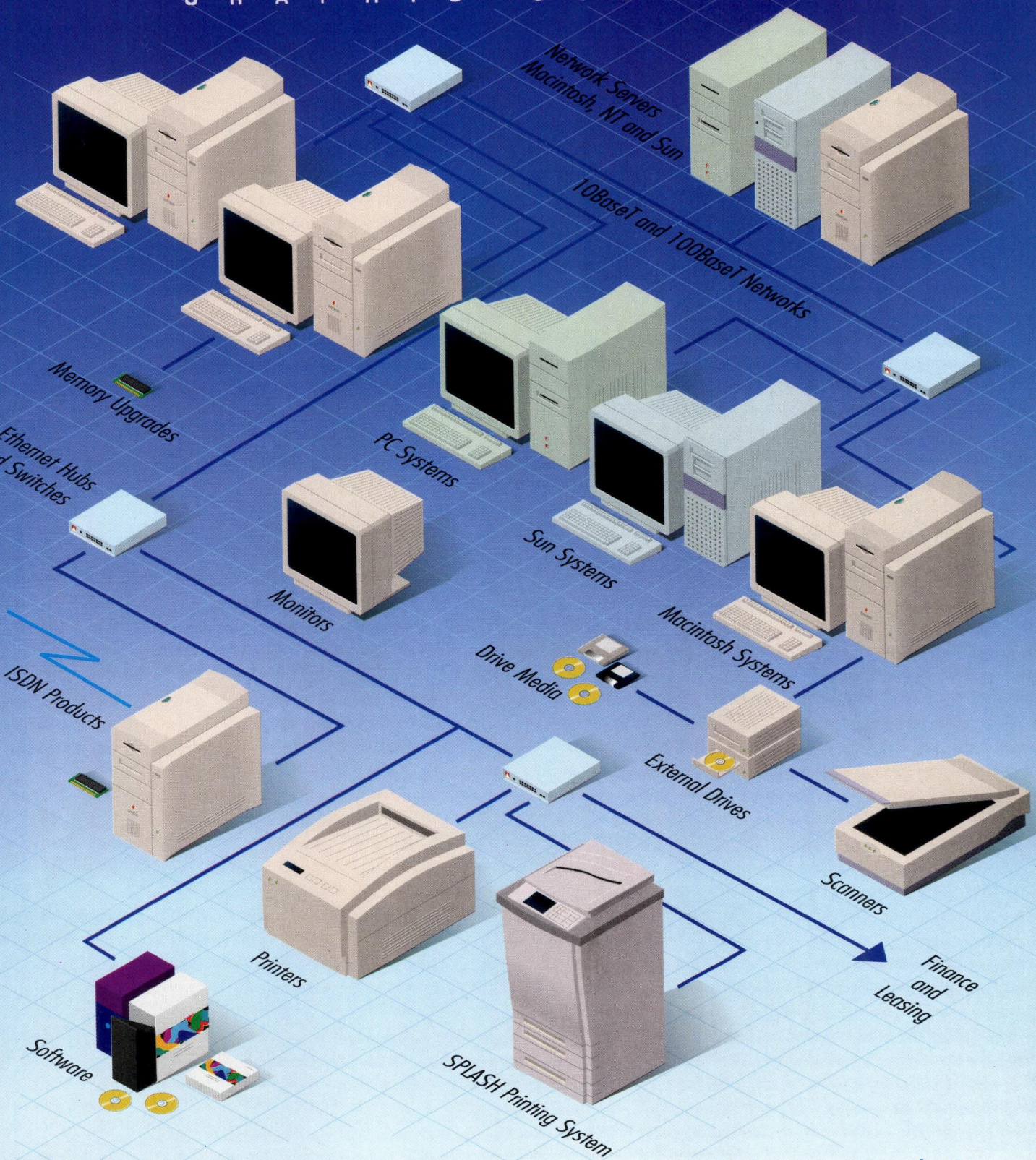
Finally, to download, manage, and edit your images, digital cameras these days come bundled with gobs of software, typically for Mac and Windows 95 platforms, although NT is becoming increasingly common.

These software packages usually include a download/upload utility and any number of consumer image-editing applications such as Adobe PhotoDeluxe. Just hook up your camera through your modem or printer port, open the application, and voilà! Or if hard copies are more your style, forget the computer altogether and connect directly to a specialized printer such as the Olympus P-300 (£499), a pint-size dye-sub, or the Epson Stylus Photo (£261), a six-colour ink-jet. QMS also has a tiny dye-sub, the PhotoPrint 150 (£295), which outputs A6 prints.

Whether you're a professional photographer looking to expand your arsenal or whether you're just looking, you'll find that the megapixel invasion has only just begun, scoring victory after victory in the battle of price versus quality. ■

CREATIVE

GRAPHIC SYSTEMS



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ink

Gone are the days when you'd have to fork out for a high-end dye-sublimation printer for your visualizations. Today's breed of "photo-quality" ink-jets offer stunning quality to save you cash on Cromalins

different

By Cliff Joseph

Anyone who has even the slightest interest in computer graphics or DTP work will have noticed that 'photo-quality' printers are all the rage at the moment. All the major printer manufacturers have released new products in recent months that they claim are capable of photo-quality output. The competition among them is so great that prices have fallen to remarkably low levels.

You can pick up one of these new printers for well under £500 and, in fact, most of the printers reviewed here cost less than £300. Hewlett-Packard is even advertising its latest DeskJet printer on television as just another mass-market consumer product.

The remarkable thing about this new generation of photo-quality devices is that – with one exception – they are all ink-jet printers. In the past, ink-jet printers were the low-cost, low-quality option for users who couldn't afford a 'real' colour printer. They were fine for business users who just wanted to print a few pie charts every now and then, but professional designers and pre-press users needed much greater quality than any ink-jet device could provide. These users still had to rely on expensive Cromalins, and if an in-house proofing device was needed they'd have to spend thousands of pounds on a dye-sub printer from specialist companies such as Kodak or Tektronix.

That's all changed in the last year or so, thanks to the arrival of low-cost scanners and digital cameras. Photo-quality input devices need photo-quality output devices to go with them, and mass-market companies such as Hewlett-Packard and Epson have spent millions of dollars improving their ink-jet printer technologies in order to grab a slice of this expanding market.

As a result, the output quality that you can get from an ink-jet printer has improved immeasurably in the last year or so. The best of these new printers can certainly challenge more expensive dye-sub printers. They may not replace the Cromalin, but they're good enough to be used as a pre-proofing device, for producing visualizations, or just to give colleagues or clients an idea of how a design will look without going to the expense of a Cromalin. (*Digit*'s marketing department took a shine to the Stylus Photo during our testing and wanted to use it for sending out pages to potential clients. Doing that with Cromalins would have cost a fortune.)

But if these low-cost printers are still confined to the pre-proofing stage, the very latest high-end ink-jet from Epson finally challenges the dominance of the Cromalin. Developed in conjunction with DuPont and EFI, the new Stylus 5000 is intended to directly compete with traditional dye-sub proofing devices. Its output quality is in a different league from that of its low-cost counterparts, and so is its price. The complete system, with a PostScript RIP, will cost about £6,000. Yet even this is still very competitive when compared to traditional dye-sub printers.

Printing problems

There are two great problems that ink-jet printers always struggle to overcome. The first is the 'ink-bleed' effect that causes water-based inks to bleed into the porous fibres of cheap paper stocks. The simple answer to this problem is just to use better quality paper with a less-absorbent surface.

Ink-jet manufacturers like to boast that their latest printers can produce 'near-photographic' quality even on plain paper, but that's just marketing hype. If you want to get anything like photographic quality from one of these printers you'll need to use photo-quality paper.

Most manufacturers now produce several different types of paper, but the top-quality glossy papers will be the only acceptable option for most designers. These are much more expensive than ordinary office paper of course, but they're still a fraction of the price of a Cromalin or a proof from a dye-sub printer. (See sidebar page 123 for full costing.)

All of our tests were conducted using glossy photo-quality paper stocks.

The other problem that affects ink-jet printers is dithering. A computer monitor can display 16.7 million colours, but ink-jet printers

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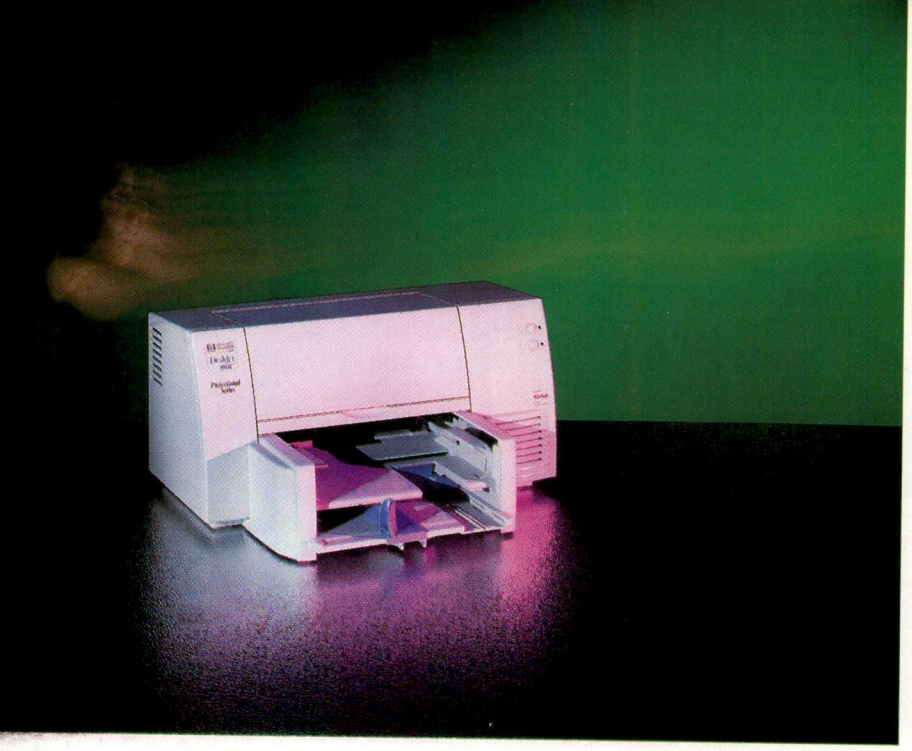
(Far left) The Epson Color Proofer 5000 lets RIP with its Fiery friend.

Photography by Patrick Llewellyn Davies



create dots of ink using just the four basic CMYK colours.

They simulate the full range of 16.7 million colours by placing those dots close together 'dithered' halftone patterns. The size, shape, and even the angle at which the dots are placed on the page affect the overall quality of the image. If the individual dots of ink are large enough to be visible the result is the coarse, grainy effect that has always been the tell-tale sign of ink-jet output.

Each printer manufacturer has its own method for overcoming this problem, but the two companies that have had greatest success are Hewlett-Packard and Epson.

In quality terms, HP's current top-of-the range model is the DeskJet 890C, which costs just over £200. This printer uses PhotoRet II, a new version of HP's proprietary 'photo resolution enhancement technology'.

Although the printer has a relatively low resolution of 600dpi, its print mechanism produces incredibly fine ink droplets that are just 10 pico litres (0.000000000001 litres) in size. The ink drops that the printer places on the page consist of up to 16 of these droplets, compared to eight droplets for most other ink-jet printers.

This gives the printer very fine control when it is mixing colours together and enables it to produce very subtle colour graduations.

Photographic output hasn't been HP's strongest point in the past, but the DeskJet 890C is a definite step forward. Photos printed on glossy paper come close to photographic quality. It produces bold colours and fine detail, although the grainy dithering effect is still noticeable to the naked eye. A higher resolution might help here. However, the DeskJet 890C does have one other factor in its favour.

It's extremely fast, almost twice as fast as the Epson Stylus Photo when printing full A4-size images. Its quality doesn't quite match that of the Stylus Photo, but if you're looking for something to quickly pump out rough proofs before a deadline the DeskJet 890C might well fit the bill.

It's a shame that the PhotoRet II technology isn't also used in the A3 format DeskJet 1100C. This is an older model than the DeskJet 890C, so an upgrade that uses PhotoRet II will no doubt appear in coming months. Its image quality isn't quite as good as that of the DeskJet 890C. The dithering is coarser and more noticeable, but the fact that this is now quite an old model means that you can pick it up for a bargain price. There aren't many A3 printers available for less than £300, so if you're looking for A3 output this is a good place to start.

(Above) Hewlett-Packard's DeskJet 890 is the ink-jet for Windows-based designers in a hurry.

(Right) The Epson Stylus Color 800 offers twice the resolution of the DeskJet.

Epson races ahead

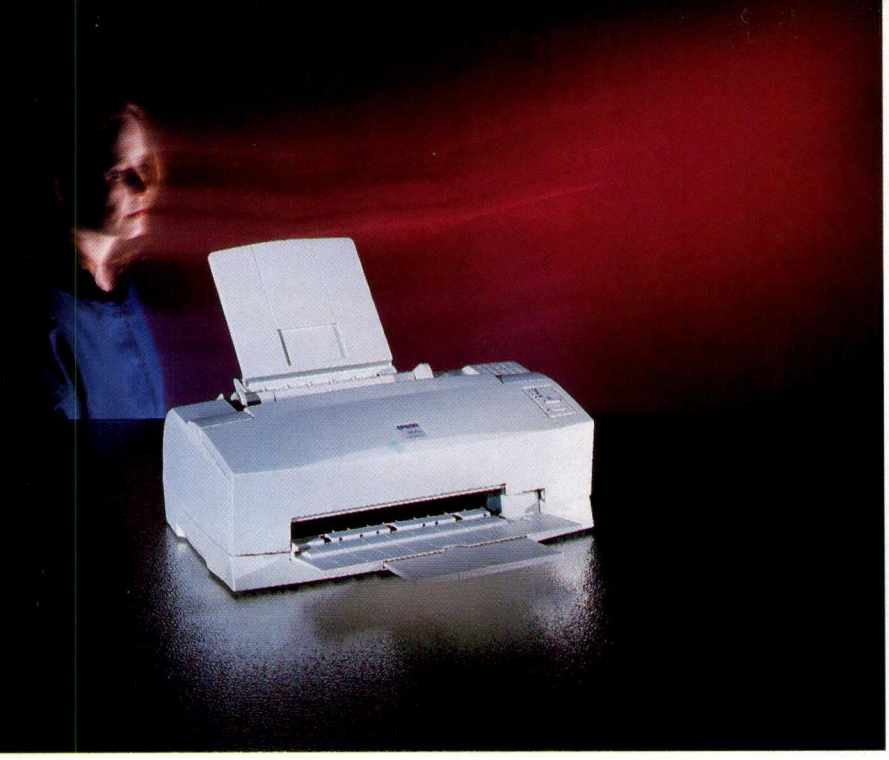
But, despite the advances that HP has made recently, it's still Epson that takes top honours for photographic output.

Epson's printers are all based on its proprietary Micro Piezo printing technology. The thermal printing mechanism used by all other ink-jet manufacturer works by heating

Ink-jet printers

PHOTO PRINTERS	ALPS MD-1000	CANON BJC-7000	EPSON STYLUS COLOR 800	EPSON STYLUS PHOTO	EPSON STYLUS PRO 5000
Typical street price [1]	£299	£250	£220	£235	£2,000/£6,000 [2]
Printer format	A4	A4	A4	A4	A3
Platforms supported	Mac/Windows	Windows	Mac/Windows	Mac/Windows	Mac/Windows
Maximum resolution (dpi)	1,200 x 600	1,200 x 600	1,440	720	1,440
Standard resolution (dpi)	600	600	720	720	720
Colours used [3] for photo-printing	CMYK	CMYK, LC, LM	CMYK	CMYK, LC, LM	CMYK, LC, LM
Photo printing speed (per A4 page)	4	4	4	10	10 (per A3 page)
Paper capacity (sheets)	100	130	150	130	250 [4]
Built-in interfaces	PC Parallel	PC Parallel	PC Parallel, Mac serial	PC Parallel, Mac serial	PC Parallel, Mac serial
Optional interfaces	Mac SCSI	Network	Network	n/a	Network

1) All prices exclude VAT 2) £2,000 for basic printer Stylus Pro; £6,000 for Color Proofer 5000 with PostScript RIP 3) LC = light cyan: LM = light magenta



inks so that boiling droplets are squeezed out of the nozzles on the print head on to the page.

The piezo system uses electronic pulses that, according to Epson, provide more precise control over the size and shape of the ink drops.

It certainly seems to work, as the Stylus range of printers has won numerous awards in the last year or so. And, in the new model 5000, it looks as though Epson has come up with the printer that finally takes ink-jet technology into the professional graphic arts arena.

Your biggest problem with Epson's printers might well be deciding which one to buy. At first glance, the Epson Stylus 800 might appear to be the best choice in the sub-£500 category. Priced at about £200, this printer boasts a resolution of no less than 1,440dpi. That's twice the resolution of the DeskJet 890C and also of the 720dpi Stylus Photo.

But for photo-quality output it's the Stylus

➔

colour calibration

COLOUR CALIBRATION IS OBVIOUSLY AN IMPORTANT ISSUE for any design professional. It may be a little less vital if you're looking at one of these low-cost ink-jet printers simply because they're likely to be used only as rough pre-proofing devices. Even so, it's worth checking on the calibration options provided with each printer so that you know what you've got to work with.

The Mac-compatible printers, such as Epson's Stylus range, tend to support Apple's ColorSync calibration system, so Macintosh users will be right at home with these.

Hewlett-Packard's printers aren't really aimed at design professionals, despite the 'Professional Series' label prominently displayed on the front of both the DeskJet 890C and 1100C.

These printers tend to rely on HP's automated ColorSmart colour-matching system, which was designed primarily for home and business users who don't really want to be bothered with the ins and outs of colour calibration. As a result, the printer driver doesn't offer an awful lot of control over the calibration process. Hewlett Packard has collaborated with Microsoft on the development of a new colour model called sRGB (see News), and the company already supports sRGB in some of its printers and scanners. That could provide a consistent colour model from scanner input through to printer output. As present, though, the professional pre-press market shows little interest in sRGB.

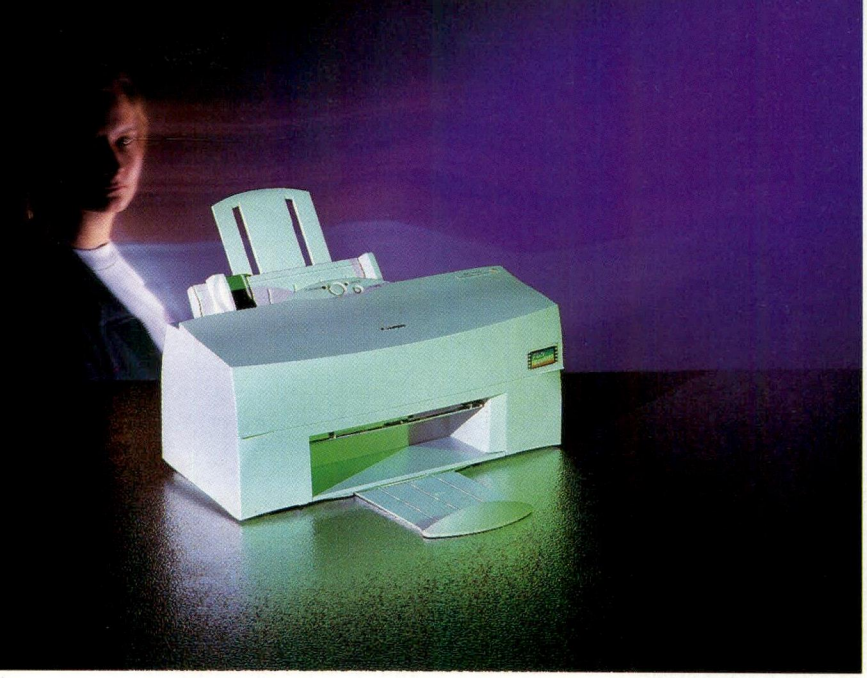
It's only the much more expensive Epson Color Proofer that offers genuine pre-press standard calibration facilities. The PostScript RIP provided with the Proofer includes all the calibration options normally associated with PostScript Level 3, as well as support for a variety of other colour models.

The RIP was jointly designed by Epson and EFI, so it naturally includes EFI's ColorWise system, along with Euroscale, SWOP, 3M and Fuji proofing standards. These options aren't available with the £2,000 standalone version of the printer, the Stylus Pro 5000. But, like all the other Stylus printers, that model does support Apple's ColorSync. So, for both quality and colour calibration it looks like Epson is well on the way to sewing up the photo-quality end of the market.

	HP DESKJET 890C	HP DESKJET 1100C	LEXMARK SERIES 7200
	£250	£295	£220
	A4	A3	A4
	Windows	Windows	Windows
	600	600	1,200
	600	600	600
	CMYK	CMYK	CMYK, LC, LM
	4	0.25	4
	150	150	150
	PC Parallel	PC Parallel	PC parallel
	Network	Network	n/a

4) Option for second 250-sheet tray

Epson has come up with the printer that finally takes ink-jet technology into the professional graphic arts arena



(Above) Canon's BJC-7000 includes a special ink to help bind colour to the page.

Photo that you should concentrate on. The Stylus Photo's strength is that it prints with six colours. In addition to the standard CMYK colours, it also uses lighter shades of both cyan and magenta. This is intended to provide smoother graduations between colours.

The use of six colours certainly makes a difference when printing photographs. The output of the Stylus 800 is comparable to that of the DeskJet 890C, with a slight but noticeable dithering effect. The Stylus Photo, however, manages to almost entirely eliminate the dithering effect. If you look closely you can still see a very fine pattern of dots on the page, but it's not at all obtrusive.

In fact, the printer's output is pretty remarkable for such a low-cost device.

We did find that its default settings produced rather weak reds, but this can easily be adjusted with a little experimentation with the driver software. The printer is also a little on the slow side, taking about ten minutes to print an A4 page in our tests, but the quality is worth the wait. There's no doubt that the Stylus Photo produces the best photographic output of any printer in the sub-£500 price range.

There are other contenders that claim to offer photo-quality output. The most interesting of these is Canon's BJC-7000, which includes a special 'optimizing' agent in its black ink. This is designed to help bind the inks into the page and reduce ink bleed on plain paper. It does seem to work well, producing some of the best output we've seen on plain paper. However, for best results you still need to use glossy photo paper. With this type of paper the printer's output is good, comparable to the DeskJet 890C, but it took almost 20 minutes to produce a page that the 890C managed in about five minutes.

Lexmark recently released its new JetPrinter 7200, but this was noticeably marred by fine marks that the print head left on the paper as it moved across the page. Alps' MD-1000 printer also suffered from noticeable banding when printing large images. This is the only non-ink-jet printer reviewed here, as it uses the dye-sublimation printing system that is used in more traditional proofing devices.

The print mechanism holds four small ribbon cartridges. You have a choice here between using the four standard CMYK colours, or you can remove the black cartridge and use a special 'finishing' cartridge to provide an extra glossy coat to the print.

The problem, of course, is that removing the black cartridge forces the printer to simulate black by mixing cyan, magenta and yellow. This results in a lack of crispness and definition on areas that should be true black so we used all four standard colours in our tests.

In some respects the result was quite impressive. The printer seems to be unaffected by dithering, but without the glossy finish its prints had a rather dull appearance, and the glossier output of some of the ink-jet printers was more pleasing to the eye. There was also the banding problem that we mentioned earlier.

None of these printers came close to challenging the quality of the Stylus Photo, and until recently we might have said that the Stylus Photo was the best ink-jet printer in any price range.

5000 prints can't be wrong

However, we were recently able to obtain a pre-production sample of the Epson's new 5000 series ink-jet printer, and this takes ink-jet technology to an entirely new level.

The 5000 model combines the six-colour printing of the Stylus Photo with the 1,440dpi resolution of the Stylus Colour 800. The results are extremely impressive. It produces fine detail and rich colours, with only a minute trace of a dithering pattern noticeable under

Pronto prints

WE TESTED THE SPEED OF THESE printers by printing a high-resolution (300dpi) image that occupied the maximum print area supported by each printer. The original image was A3 in size, and a cropped version of the same image was used to test the A4 format printers.

As you can see below, the speed of these printers varies enormously. At just over five minutes, HP's DeskJet 890C is the fastest unit by far. The higher quality of the Epson Stylus Photo took almost twice as long to produce, but waiting 10 minutes for this printer is still a lot faster and cheaper than sending a file to a repro house and waiting for the proof to be biked back to you.

The new Stylus Pro 5000 promises to be very fast as well, but our review unit was pre-production and its net-working option wasn't fully functional so we were unable to get accurate timings from it. But, if it lives up to its claims, a lot of designers will want to have one for in-house use if only because of the time that it saves.

	Print Time (mins:secs)
Alps MD-1000	9:45
Canon BJC-7000	19:45
Epson Stylus Color 800	8:15
Epson Stylus Photo	10:00
Epson 5000 series	10:00 (for A3 print *)
HP DeskJet 890C	5:15
HP DeskJet 1100C	15:15 (for A3 print)
Lexmark JetPrinter 7200	14:08

* Epson's estimated figure for shipping unit - review unit was pre-production.

close examination. It's also worth noting that our test images were printed on glossy photo-quality paper, but DuPont is developing a new type of proofing paper for the printer that should provide even greater quality.

Epson provided us with sample prints on the new proofing paper, and they were indeed excellent, but we were unable to obtain any paper with which to conduct our own tests.

Even so, the quality of its output is impressive and Epson looks set to make a big impact on the colour-proofing market.

You may have read reports of this printer on the Internet, but Epson UK's pricing and naming system differs from that of the US so it's worth making a note of the specific options available here in the UK.

The basic printer will be called the Stylus Pro 5000, and will cost approximately £2,000. It has a maximum print area of 483 x 329mm, allowing you to print two-page spreads with bleeds and crop-marks. Mac and PC interfaces are built in, with driver software available for the Mac, Windows 3.x, Windows 95 and NT. Standard paper capacity is 250 sheets with a second 25-sheet tray available as an option.

This version of the printer is equipped with only a small 6K memory buffer, but memory can be expanded to 96MB if required. Epson quotes a speed of 10 minutes per A3 page at maximum resolution, which was backed up by our test results. Remember, though, that printing speeds will depend on the exact configuration of the host computer and any network connections that are in use.

A network interface is available as an optional extra, but the most important option is the Fiery PostScript RIP, jointly designed by Epson and EFI.

A more highly configured version of the printer can be bought along with the RIP for a total price of around £6,000+VAT. In the UK this combination will be called the Color Proofer 5000.

In this version, the printer is equipped with 32MB RAM and an ethernet interface. There's a parallel port but no Mac serial port, so Macintosh users will need to use the ethernet interface.

The RIP supports PostScript Level 3 and has its own 2GB hard disk. It supports the Euroscale, SWOP, 3M Matchprint and Fuji proofing standards, as well as EFI's ColorWise colour-management system. The Fiery print spooler is included in the bundled software, and print jobs can be downloaded to the RIP's hard disk and stored until you choose to print them. The RIP also has its own mini Web site stored on the hard disk, and any network user with a Web browser that supports Java can use this to install the printer software on their machine, and to receive status information from the printer.

It's not cheap, but the Color Proofer 5000 is still less expensive than many dye-sub proofing devices. Its speed and quality should find an eager audience among designers who have been unable to afford their own in-house proofing facilities in the past.

More importantly, though, the 5000 series represents an important breakthrough for ink-jet technology and suggests that it won't be long until every studio can afford a proofing-quality printer of its own. ■

Colour costs

THE AVERAGE HOME OR BUSINESS user might balk at the cost of paying for the glossy paper stocks used by these printers. Yet, for the professional designer, these papers are a small fraction of the price you might pay for a few Cromalins.

And, of course, you also have to take the cost of inks into account. It's difficult to estimate how much ink cost comes to on a per-page basis. Printer manufacturers sometimes quote an estimated cost-per-page, but they all tend to calculate these differently so you can't rely on these figures to provide a reliable comparison of running costs.

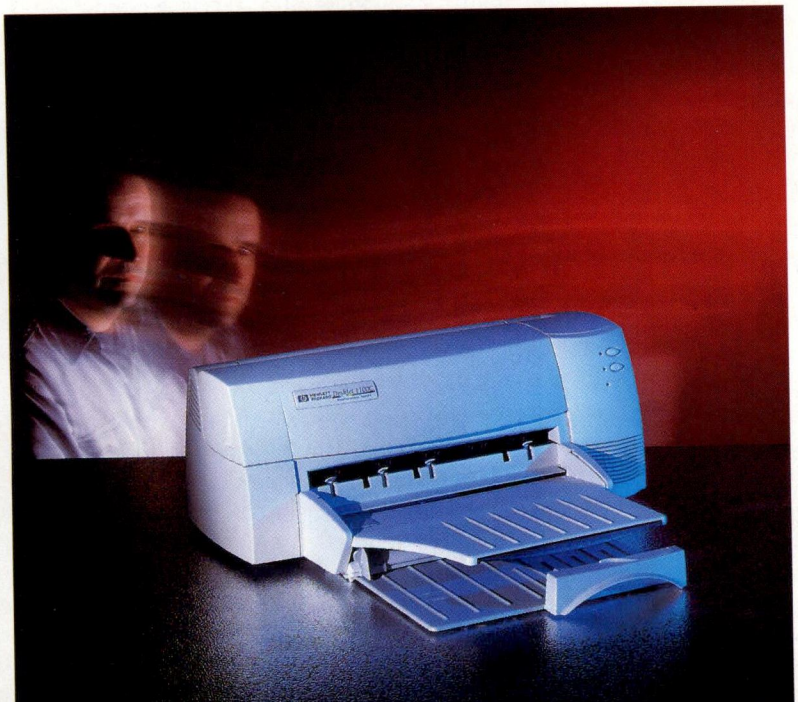
But, if you're using top-quality glossy paper, you'll find that the cost of the inks is much less than the cost of the paper itself. So comparing the price of each manufacturer's glossy paper should at least give you some idea of how their running costs compare.

It is possible to buy cheaper glossy papers from stationers such as Rymans. Needless to say, the printer manufacturers prefer you to use their own more expensive papers. In all fairness, it is true that these other brands can vary in quality and may not bring out the best in your own printer. So, for the purposes of our calculations we'll work with the prices of the papers recommended by HP and Epson, the two most important ink-jet manufacturers.

Epson's inks and papers both cost less than those of HP, which is another point in Epson's favour. A single sheet of glossy paper for the Stylus Photo costs about 95p. Add on a few pence for the ink and you can estimate the cost of running the Stylus at about £1 per page, which is pretty good for a printer that provides such high quality.

With running costs just over £5 per page, the new Epson 5000 series ink-jets compare very favourably with the £40 (approx) you'd fork out for getting a single Cromalin. Now you can see why it is already making waves in the pre-press market. It's certainly worth considering investing to save money in the long run.

(STREET PRICES INC.VAT)	PHOTO-QUALITY PAPER	BLACK INK CARTRIDGE	PHOTO-QUALITY COLOUR CARTRIDGE
HP DeskJet 890C	10 sheets A4: £10.57	£20	£25.85
Epson Stylus Photo	10 sheets A4: £7.59 10 sheets A3: £23.59	£15	£11.79
Epson 5000 series	100 sheets A3+: £449	£40.55	£42



(Below) The HP 1100 is getting a bit old nowadays, but it's an A3 bargain for under £300.

All for one, and one

By David McCandless

Forget proprietary computing standards, the latest version of QuickTime marks a cross-platform Nirvana.

Apple's QuickTime will always be regarded as one of the things Apple Computer got right. For seven years now, QuickTime has been the dominant force in multimedia. It delivers cross-platform audio and video, and handles of 3D graphics, still images and animation. It's a stable and simple go-between for both multimedia authors and audience.

But digital media moves quickly and into a "platform neutral", Internet-savvy market place Apple has now fired QuickTime version 3.0 (QT3), a fully up-to-date, much-revised and innovative new release. It encompasses new codecs, native Photoshop and Java support, built-in animation and sprites. New architecture standardizes video effects, gives direct compatibility with high-end Avid video systems and a spread of other proprietary formats, such as DV Cam and MPEG. And everything is rounded off with a host of well-planned, well-implemented tweaks and enhancements. In short, QT3 is what we've been waiting for.

It has, of course, always been good. Historically, it should be remembered less as a springboard for an ill-fated CD multimedia industry and more as an example of how software, great software, can truly revolutionize an industry.

'Greyhounds' by Daniel Mackie

for all

QuickTime was always so much better than Video For Windows, Microsoft's reply to Apple's desktop-video revolution. It was bolted on to clunky 16-bit Windows 3.1, and with its identikit codecs and interleaving of sound and video, it claimed itself as viable a carrier wave for multimedia as QuickTime. It never was.

It went through five or six versions, and never had the scope or scale of QuickTime. It could manage only a single audio and a single video track, and couldn't handle still images at all. It couldn't reference audio streams. It was always reliant on second-hand codecs ported over from the Mac. But somehow the PC managed to cling to it as a standard, even in the face of the well-made QuickTime For Windows.

This, of course, created terrible headaches for cross-platform authoring. Converting from QuickTime to AVI was a fraught business, never as simple as first anticipated. And in the days of lowly processors, a ten-hour failed conversion job could mean a lost client.

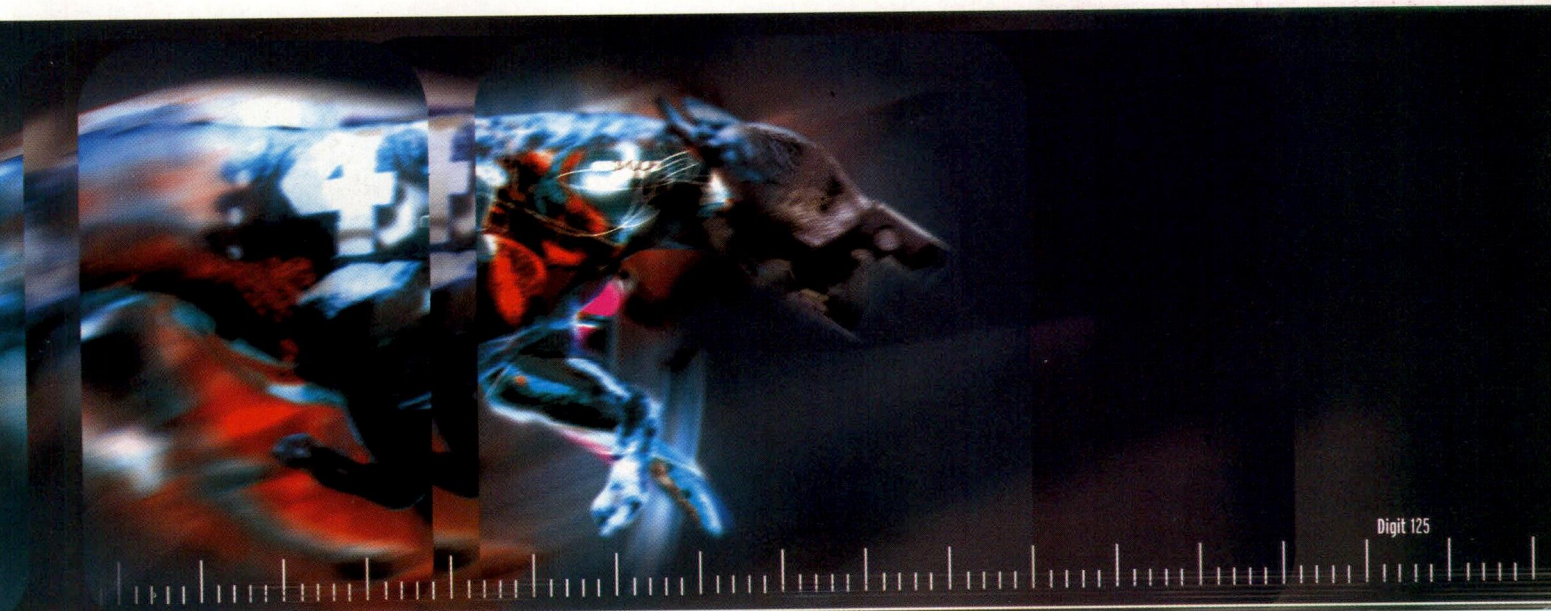
Media Abstraction

So one of the big sells to the cross-platform fraternity is QT 3's design as a universal exchange format for digital production and delivery. It achieves this by using a Media Abstraction Layer, tech-speak for clever software that acts as an intermediary between QuickTime's features and the software packages and hardware which want to use them.

So, for instance, within this layer is built-in support for file formats such as MPEG video or Microsoft AVI's. PC video files, once opened with MoviePlayer or any other QT environment, will 'become' QT files, enjoying all the benefits that come with the format including multiple audio tracks, and reverse playback. The system is also backwardly compatible, meaning any AVI file, from any era of desktop video, can be brought in and QuickTimed.

The whole action is transparent, meaning that any application that uses the Media Abstraction Layer – be it 3D animation package or video editor like Premiere – will be able to load QuickTime movies, AVI movies, MPEG movies effortlessly and seamlessly. No conversions are necessary.

This has important consequences for high-end video production and the authoring community, so often requested to pull together source material from a variety of formats. For example, QT3 directly supports DVC, Sony's new digital-video-tape format (sometimes known as DVCam or just DV) and AVR, Avid Resolution Files, the format used in the companies' massively successful →



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64Mb	£100.00
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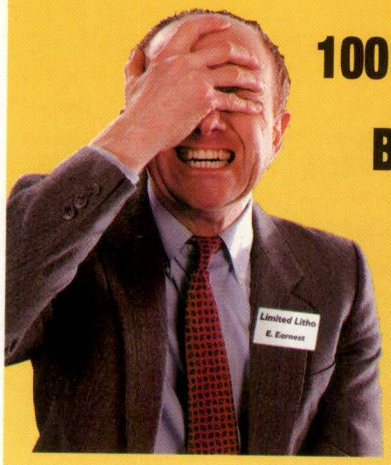

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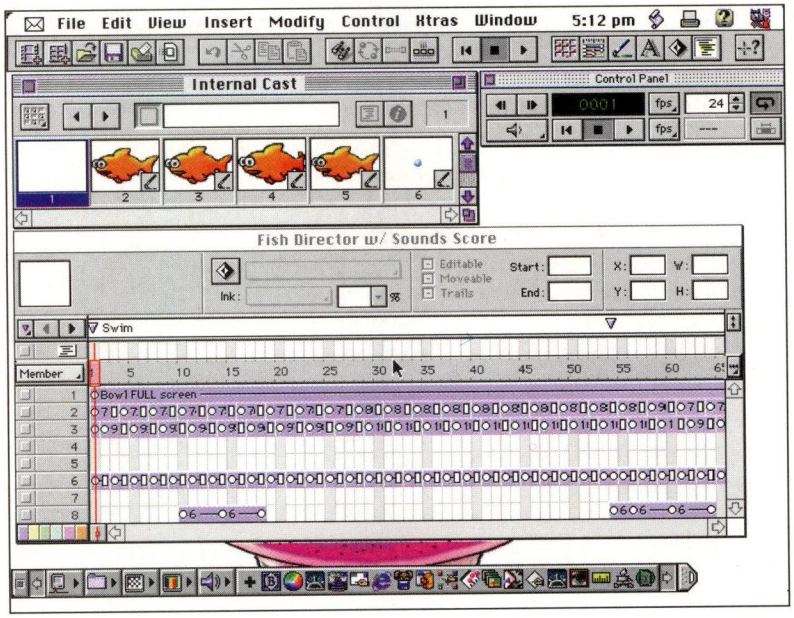
professional video-editing solutions like MCXpress and Media Composer.

The ground-breaking broadcast-quality DVC format has narrowed the quality gap between video consumer and video professional, bringing digital online-editing within reach of both. But to currently integrate DV into Avid system requires conversion to a non-FireWire format, like Betacam. Then there's the horrific range of competing digital and non-digital video formats out there (Hi-8, SVHS, D-SVHS, Betacam SX, DV, DV Pro, etc) which may also be needed.

However, an Avid editing system using the QuickTime Abstraction Layer could happily import and mix Motion JPEG clips, alongside DVC footage, MPEG, still images, animations or anything. And if another format came along, the codec could simply be inserted into QT's modular architecture – and every application would immediately support it – transparently.

Importantly, QuickTime is also a portable software solution. In a networked authoring or editing environment with maybe a range of PC's, Macs and Silicon Graphics machines, media can be exchanged between everyone on the network, regardless of their platform. It also means that we might finally start seeing high-end video-editing solutions, like Media Composer or Media 100, on the PC. Maybe.

QuickTime's handling of audio sample rates is extraordinary, and virtually unheard of on any other system



Direct-or access
Unsurprisingly, QT3 includes extensive support for Director. Here the sprites from the fish movie have been imported directly into Director format. Export facilities are just as comprehensive.

Alongside video files is staunch support for still images in QT3. One big innovation is the After-FX style support for Adobe Photoshop images. They can be imported into a QuickTime environment with layers and transparency preserved. A few bits of PC obscura are also catered for – namely FLIC files, the early animation format from Autodesk, and BMP's, the flabby but widely used still-image file type. Naturally QT3 provides direct support for Apple QuickDraw images, as well as GIFs (animated or not) and JPEGs.

The final big advantage for QuickTime and its Media Abstraction Layer is the separation and isolation of hardware from the equation. Ever-changing peripherals such as 3D graphics accelerators, soundcards, and capture boards can now be ignored by developers and content providers. A QT3-compatible application will take advantage of whatever hardware it finds automatically. The developers just talks to QuickTime, and QuickTime in turns talks to the peripherals. The potential is to introduce accelerator cards or dedicated video-effects processors without having to rewrite software and worry about compatibility.

A by-product of this is the first standardized Motion JPEG (MJPEG) format, called OpenDML. Anyone who's tried to share footage between say, Radius VideoVision, Miro DC20, and Media 100 will understand the joy of a standardized MJPEG format. If vendors are willing, QuickTime should allow a bit more choice and variety in a studio planning to invest in capture cards.

QT3 also proposes itself as a open standard for visual effects, to take the performance variation and inconsistencies of one editing systems' effects over another's. On one level, QT3 can play several streams of video simultaneously (hardware permitting) and is firmly calibrated for field-based video, ideal for slow motion and backwards playback effects. Most impressively, the core code has built-in effects for cross-fading, chroma keying, wipes, and colour adjustment, while a unique 'QuickTime Atoms' system, Apple ensures, will be able to recreate any effect, be it old, current or yet to be invented.

It's a great idea. But it remains to be seen how heavyweights such as Avid and Media 100 respond to this particular feature-set. Both systems use real-time effects as a selling point for the most expensive versions of their systems. Whether we will see an integration of say, QT effects architecture into these proprietary systems is uncertain.

Internet integration

It's easy to see Apple's vision for the Internet. Every moving sprite, every animating image, every video and audio stream, every piece of dynamic content – all QuickTime. The market is already slightly cluttered. Dynamic HTML is carving a niche for itself. Shockwave is very popular. JavaScript is proving its versatility. Even Adobe's Acrobat format is pushing for new ways of presenting content. Whether there remains room for yet another standard or demand on a user's browser remains to be seen. In the meantime, however, QuickTime has a sizeable portion – the QuickTime plug-in version 2 for browsers – of its code directed towards Internet publishing.

Aside from creating an obvious 'level playing field' for media formats (no more AIFFs on your Web site for Macintosh users, WAVs for PC →

people for example), QT3's Internet code has three or four key innovations. "Fast Start" for example shows the first frame of a downloadable movie immediately and will play the movie before it has finished downloading – good for checking the clip before committing to a lengthy download.

Another simple idea allows multiple versions of one file to be attached to a single link. QT examines the bandwidth of the user and chooses the corresponding low- or high-quality file. This also works for foreign language versions of pages and text. Also, more dynamically, any part of a QT movie – be it sprites, hot spot, text or video frames – can be a hyperlink. Individual video frames can also be set up to trigger new HTML pages so a textualized running commentary can be run alongside a video.

An Internet-ready version of QuickTime VR comes with the package as well as a guarantee of total synergy with Macromedia Director in the form of a new Sprite Xport Xtra for bringing QT sprites in Director and vice versa. Thankfully, there is also full compatibility with animated GIFs, offering all the versatility and random access of a true QT file.

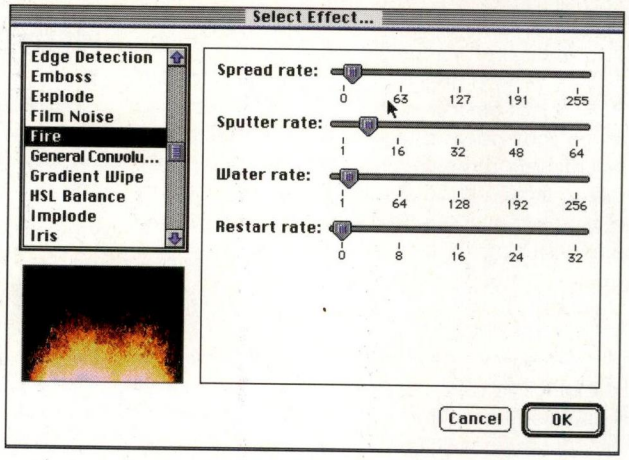
Big audio's dynamite

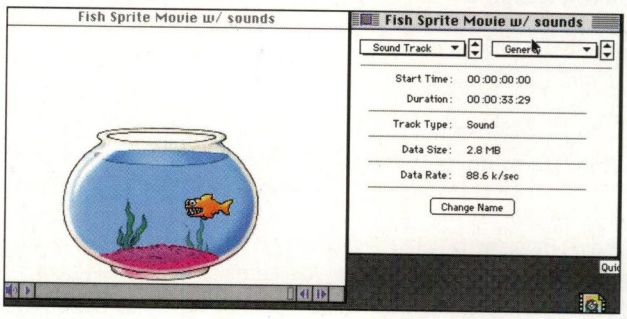
One thing Apple certainly has broken down and rebuilt from scratch is QuickTime's audio code. Now, anything you could have wanted to do with audio can be done. Any QT movie file can have unlimited sound tracks, with varying audio format, size, and sample rate – the latter, in particular, an extraordinary capability, virtually unheard of on any other system. Varied sample rate playback means that audio from any source (44.1KHz CD quality, 48KHz DAT, or 32kHz consumer DVC) can be played back and mixed simultaneously without any quality-destroying resampling.

All the audio is handled by the Sound Manager which also handles the controversial subject of synchronization. Previously, on both QuickTime and AVI-based desktop video, because of differences between timing of sound and video, audio tracks would inevitably drift out of sync over long periods of playback, typically between two and five minutes. Expensive proprietary systems overcame this dysfunction, but now QT3 solves the problem with software, providing a sample clock to synchronize every audio sample in a movie.

Audio formats supported by new QuickTime are: Microsoft WAV, AIFF, AU, Sound Designer II, and, importantly, MPEG-3 – currently the en-vogue codec with most high-quality delivery systems on the Internet. Midi support too has been beefed up. QT3 now ships with a fully functional General Midi software synthesiser, as well as a newly coded timing engine and full range of import/export options – cross-platform, naturally.

Another big introduction is sound compression, now gaining more and more importance in the advent of Internet telephony and the success of RealAudio. The package comes with





(Top) Effects teaser
The Effects Teaser, bundled with the beta release, allows you to browse through the motley of effects built into QT3. Each filter, like this fire simulator, is customizable.

(Bottom) Info screen
Each Quicktime movie has a rich layer of information associated with it. Incorporating author, creation date and copyright information, the extended header of the file also handles alternate language settings, video layers, audio streams, and data rate.

Sorensen and Qualcomm's PureVoice codecs, both optimized to pare down audio data for delivery over low-bandwidth modems.

Without the inclusion or even mention of server-side streaming, it seems that Apple is not going to thrust themselves directly against RealAudio – yet, but inclusion of Intel's Interactive Video codec on the video side (again for Internet delivery) is a sure sign that they're toying with the idea.

Apple has its eye firmly on the future. QT3 is primed for all possible future innovations: movies can be any frame rate, with no upper limit, ensuring that any futuristic sci-fi cameras we be compatible. There's a noticeable shift towards vector and sprite graphics support. And every forward-looking codec, no matter how margin or experiment, has been given its space.

For example, while QT3 directly supports dying MPEG-1, Apple still has a question mark over MPEG-2 support – as do we all. It is likely, however, as DVD and digital broadcasting gather pace that the appropriate code will be deposited into QT. In the meantime, Apple is more starry eyed about MPEG-4, the proposed "unified digital media storage format" for combining audio, video, scripting, VR, and animation in one form. It's still a way off, but it is going to be a QuickTime-based technology.

In the meantime, QuickTime 3.0 remains a truly extraordinary piece of software engineering. Well-planned and articulated and with native Windows NT support and a simultaneous PC release, here is a powerful environment for the cross-platform author, originating for any medium be it broadcast video, Internet, or CD multimedia. Get it now.
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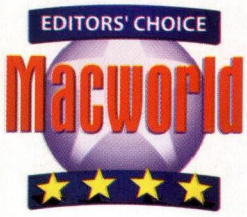

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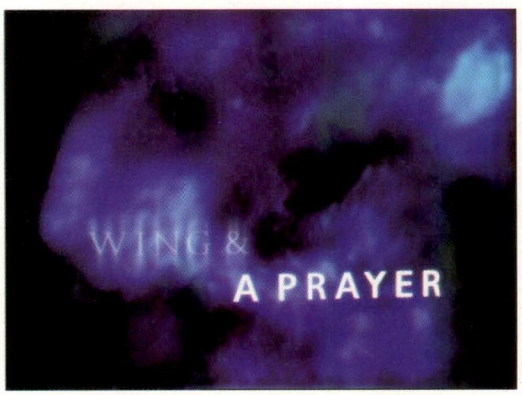
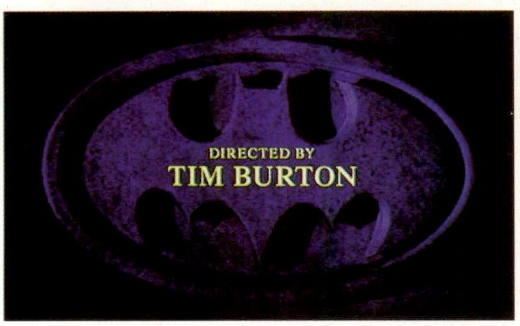
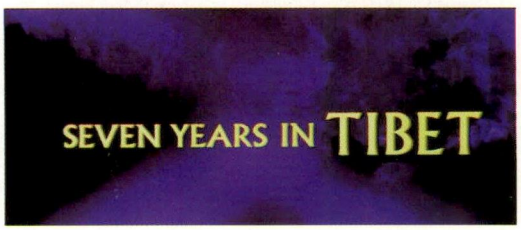
conquest

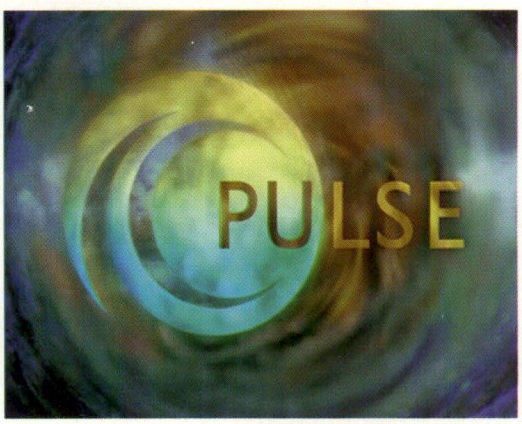
"Watching Morrison's showreel while he talks through ideas and images that have affected his work, you get the distinct impression that he's more of a film-maker than a designer."







Plume commissions include: *Conquest* by Shaftesbury Films; *Wing & A Prayer* by Channel 5; *Batman* by Warner Bothers; *Seven Years in Tibet* by Mandalay Entertainment; *Pulse* by NetHold Electronic Media; and *Spiceworld* by Fragile Productions. Watch the Attik/Plume showreel included on CDigit #1.



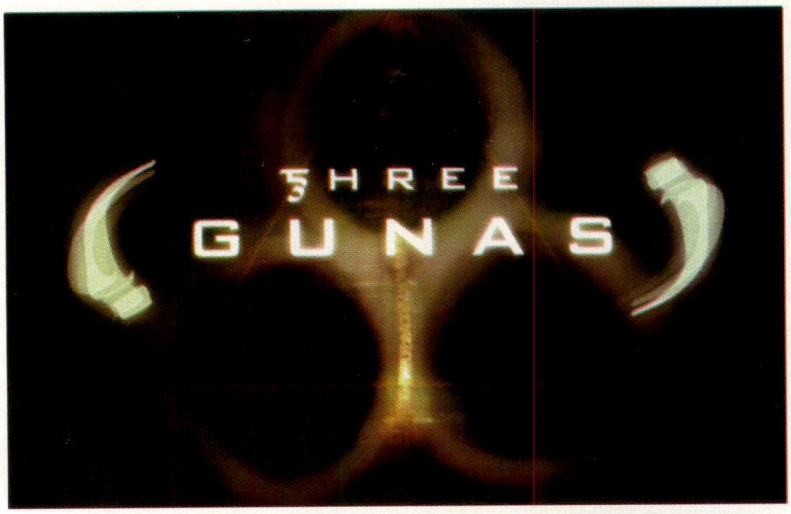
Title race

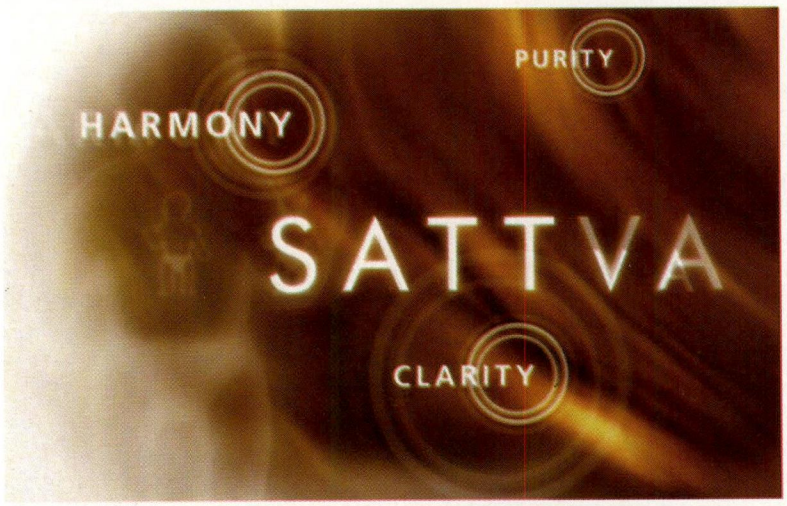
By John Spencer

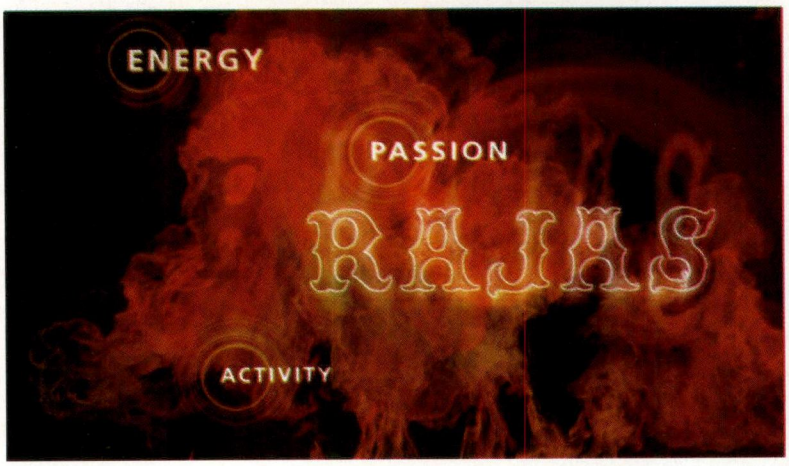
Richard Morrison's Plume has just become a part of top design agency, The Attik. Digit digs deeper into this UK success story.

RICHARD MORRISON IS A HAPPY MAN – HIS DESIGN agency Plume has just joined forces with The Attik – where, as creative director of the London agency, he will be working alongside Simon Needham and James Sommerville – two creatives who he had admired from afar until they chanced upon each other on an awards' panel and they talked about the agencies doing interesting things together.

Needham and Sommerville's agency is well-known for innovative design, ads and new media for the likes of Coca Cola, MTV, Kodak and First Direct. Morrison and his team, meanwhile, have long been associated with world-leading creative excellence in film and broadcast design, with movies as varied as *Batman* and *Spiceworld* and broadcast identities for the BBC, TV2 (Norway) and Ulster Television. →







You get a taste for what he means with Richard Morrison's showreel. Titled *Three Gunas* – Hindu values for Passion, Darkness and Harmony, not Dixon, Bould and Adams, thankfully – it shows why he's always had the knack of making the big hitters in film and TV sit-up and listen.

The upshot is that The Attik has now taken a 100 per cent stake in his business, creating a company that, to use his own words, is "a new breed creative consultancy."

More than a design consultancy, advertising agency or moving-image specialist, The Attik will be synonymous he says with "creativity – challenging and commercially rewarding ideas backed by outstanding execution across all media."

What the union certainly means is that Morrison is going to be very busy. Even before The Attik merger, he had been putting the finishing touches to four new films scheduled to do the rounds at the Cannes Film Festival.

Between those films he designed the titles for *Moby Dick* , a made-for-TV film from Hallmark Entertainment that will be screened on Sky later this Spring – and the opening titles for Channel 4's new gardening show *Wild About the Garden*. Now, he and the rest of the Plume team have found themselves re-locating to The Attik's smart new offices in London's West End and working on scripts, storyboards and designs for Hideous Kinky, Coca-Cola, Adams Childrenswear, MTV and Kodak.

Morrison is now surrounded by a huge depth of young, fresh creative talent , and The Attik has been lucky to land itself a master of the moving image who tops the wish-list of many film directors when it comes to designing sequences and identities for their films. A Brazilian attacking line-up, with the steel of a German defence.

Sitting down on a cold grey afternoon with Richard, watching his showreel while he talks through ideas and images that have affected his work, you get the distinct impression that he's more of a film-maker than a designer. Something that he willingly admits too: the hand sequences he directed for *Seven Years in Tibet* only served to whet his appetite for movie-making.

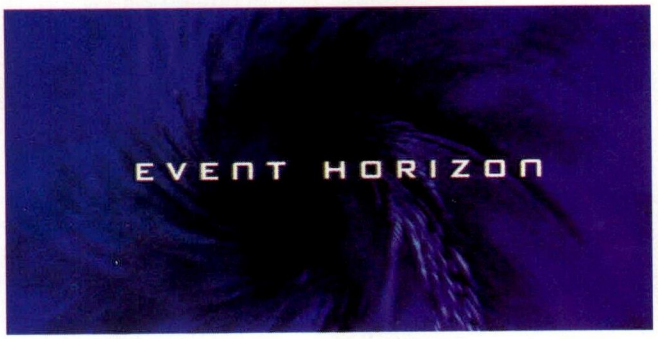
Bunuel. Fellini. Kurosawa. Hitchcock. The names of directors and movies trip off his tongue as he vividly describes a sequence, or a single image, from one of his favourite films. The slitting of the eyeball in Luis Bunuel's *Chien Andalou*. The snow storm from *Citizen Kane*, which he drew inspiration from for an idea for a BBC Seasonal identity.

Dark and light. Fire and water. Contradiction. Sudden changes of pace. Moving the audience into a response is what fascinates Morrison, particularly on the big screen where the impact is more immediate than the little box in the corner of the living room.

"I love working with film directors because they give me much more room creatively. They have to trust you completely to interpret their vision. For *Batman*, Tim Burton basically saw my storyboards and said 'go do it'. Jean-Jacques Annaud (Seven Years) was initially cagey but once we connected as people, he was just happy to let go.

"What really turned me on to The Attik was that they have that same sense of passion.

INFERNO'S HELLRAISER EVENT



IT'S NOT JUST THE BREADTH OF THE WORK, AND THE SURPRISING number of familiar images that he can call his own, but the technical know-how he's applied to bring his ideas to the screen.

Take *Event Horizon*, last year's edge-of-the-seat sci-fi horror story where *Alien* meets *Hellraiser*. To a pulsating primeval sound track composed and performed by Michael Kamen and Orbital, the *Event Horizon* title sequence takes the audience by the scruff of the neck as they are sucked powerlessly into the cavernous reach of an enveloping black hole. Finally the screen blackens, futuristic computer text beats out a stream of information across the screen , and then all Hell ensues. From start to finish the whole sequence blends seamlessly into the main story.

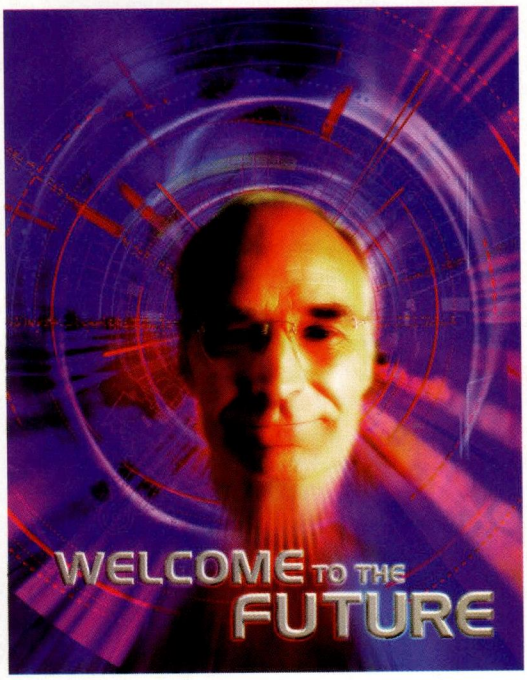
Morrison developed the enveloping black hole as a metaphor for the horror that is about to ensue from reading the script. He prefers working that way before seeing rough cuts. The black hole transpires to be a large scale perspex bowl with an opening punched into the middle. Oil and cracked ice were fed in as Morrison filmed in 35mm.

He went for live action shooting because he finds water and gas created digitally to be too superficial. With live action, natural light comes into play. To get the effect of a swirling mass, he pushed the camera up to 125 frames per second. From there on in he went digital – using Discreet Logic's Inferno (see Digit News) as the main manipulator and generator of the sequence. See Digital Toolbox for further details on The Attik's movie-effects arsenal.

Simon, James (who is now based at the New York office) and Tim Watson (The Attik, London's MD) aren't afraid to challenge the conventions.

"We are all now pooling our resources for some bloody big brands and other interactive stuff here in the UK and in the States. I think what we are doing is really going to make people think differently about how they interact with those companies and their products. It's the kind of buzz that I always get from film."

The Attik was commissioned to design the cover and an inside spread for the first issue of BBC's *Tomorrows World* magazine, launched in March.



What he adds by way of caution is a 20-year cynicism from working with marketing people, in TV in particular.

"In broadcast you get used giving them a big idea, but if it doesn't fit in with their world view... well, it's a tricky pitch. Too many marketers are scared to be different. It's our job to help them make the leap," he smiles wryly.

For some his more typographical-led idents – Travel Channel, *Spiceworld*, *Cadfael* – each one crafted, clean, memorable, he shows why he is a big fan of the Mac using Adobe Photoshop, Illustrator and After Effects. The Mac is for Morrison still the best workforce, particularly (even ironically) for its cross-platform versatility.

"I love high-resolution effects. But ideas always start here," he says pointing at his head.

No wonder those Attik guys wanted him to join them up in the creative high chair. ■

DIGITAL TOOLBOX

RICHARD MORRISON BY DAVID JACKSON

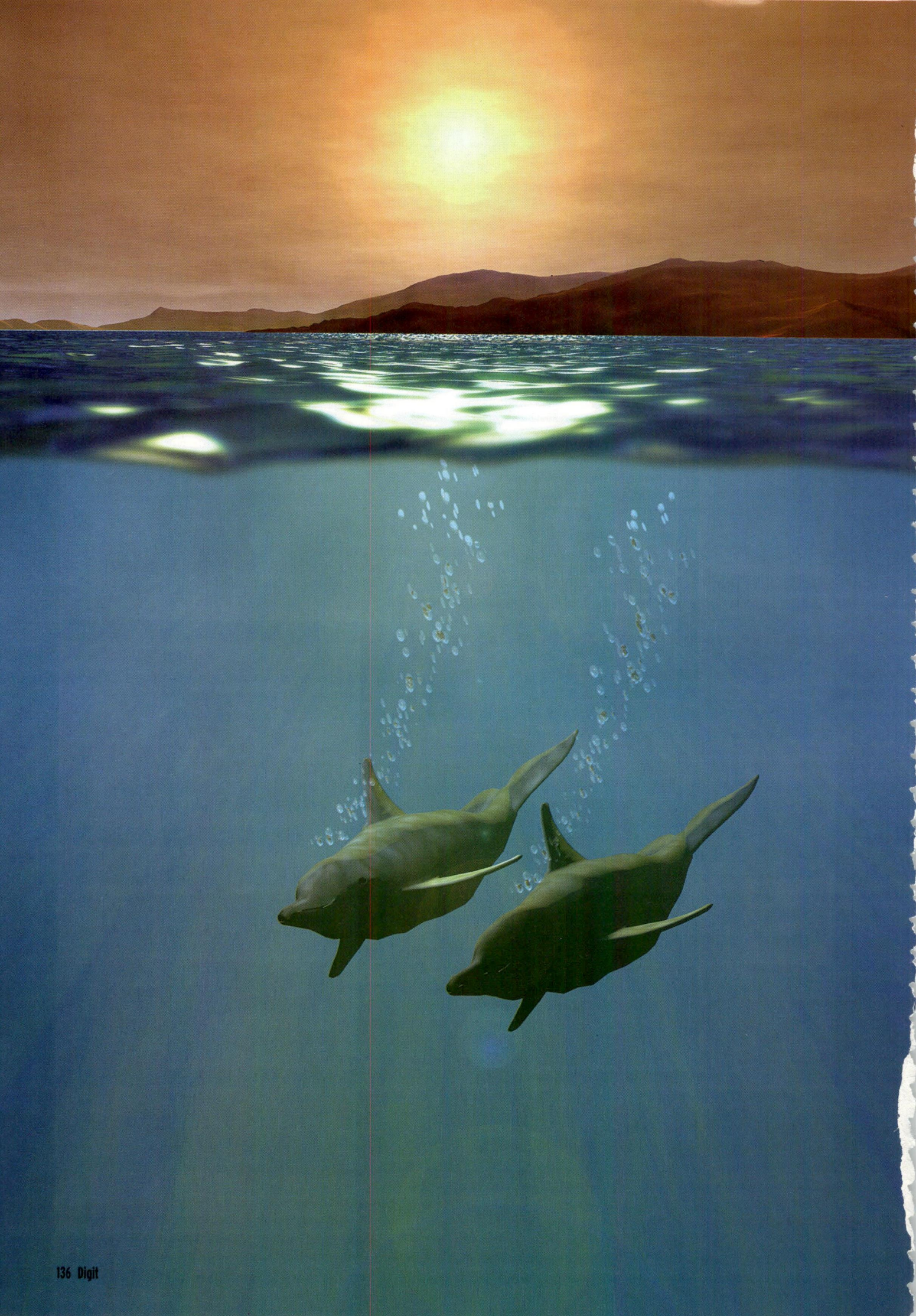
SO DOES MORRISON'S ATTACHMENT TO the Macintosh mean he's not a big fan of the high-end stuff often favoured by on-screen designers? No. He doesn't eschew Silicon Graphics, it's just horses for courses.

The studio runs Apple Power Mac 9600 systems, using Adobe After Effects, Photoshop and Illustrator as its principal in-house software tools. Whether it's live action work, 3D graphics or stop-frame animation, the decision to move to high-end SGI machines is a toss-up between budget and deadline.

The Attik's Senior Designer David Cheung explains: "There are so many different routes by which we can produce the work. Often we prefer to concentrate on the design, leaving the out-of-house post-production guys to make the work look stunning on their SGI systems."

When work goes to the post-production house, it moves away from the desktop programs to powerhouse tools from Quantel and Discreet Logic. EditBox, Quantel's on-line nonlinear editing system, offers instant access to every frame and every sequence of frames by means of its unique storage architecture. It's a fast route for cuts, wipes, dissolves, DVE moves, and audio editing. Quantel's creative-effects editor Henry handles layer effects. And creative film compositor Domino speeds up painting, keying, image manipulation, and matte creation. On-line storage eliminates archiving delays, and shots can be fixed on the fly, while full-film resolution working can often mean earlier approvals.

Storyboards and animatrics are also worked up using Discreet Logic's Inferno, Flame and Flint systems. High-resolution film to video transfer is completed on Philips' Spirit DataCine film scanner, which can work at virtually real time and perform colour correction and image manipulation at film resolutions.



Swimming tool

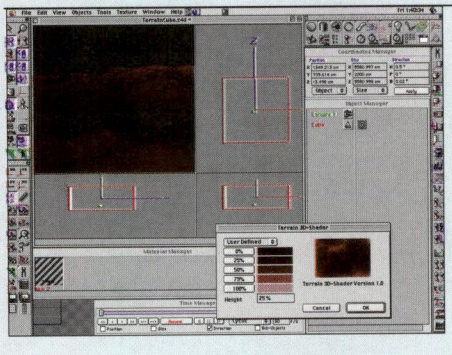
By Simon Danaher

Water scenes using Cinema 4D XL shaders and masking in Adobe Photoshop

STAGE 1: Above water

The image was started by creating the water scene. Note that because Cinema 4D has a user customizable interface the screen shots will appear differently to the default setup. If you prefer, you can open the file 'Cinema4DXL.prf' from CDigit to give you the same interface.

The finished '.c4d' files are on CDigit along with the shaders and textures required though you may need to set the path within XL (File>Preferences>General...Alternative Paths) to find the dolphin textures on CDigit.



1 To begin the scene a cube was created (Objects>Cube) and scaled so that it is very large, about 5,500-x-5,500-x-2,000 units. A 3D procedural Terrain shader was applied to the cube object by dragging it from the Material Manager to the Cube in the Object Manager. This shader comes with Cinema 4D XL (in the 3D Shaders folder within the Tex folder) and can be loaded as a material from the Material Manager. Using the camera tool a view was settled on that placed the (virtual) camera almost at the centre of the cube looking out towards an edge. A new Camera object was created to save the view.

Cinema 4D XL is a great 3D animation program that offers high-end features at a fair price. When first introduced on the Mac and PC platforms as version 4 (it originated on the Amiga) it impressed many with it's speedy adaptive raytracing. While XL (version 5) retains the alacrity of its predecessor it also has improved modelling and animation tools comparable to other, more established 3D production packages. However, no matter how fast your PC, or the application running on it, you always want more speed. In this tutorial we'll show you how to get some cool effects but without the delay.

While you can apply many of the techniques available in XL in a single scene, it is sometimes better to work in separate scene files and composite the individual parts later. One particular benefit of this way of working is that it makes scene manipulation much less of a headache since there are fewer elements to manage. It also allows greater artistic control during compositing. This particular image was constructed in two parts which were later joined and post-processed in Adobe Photoshop.

Since 3D is an illusion there's no reason why you shouldn't use a bit of trickery to get your image looking right, and many effects can be achieved more quickly post-render with an image-editing program.

There's also little point in modelling details that won't show up in the final image. So although Cinema 4D XL can handle large numbers of polygons pretty well, save those high density meshes for objects that are close to the camera. Distant, extensive objects can be made much coarser without impacting on the quality of the image.

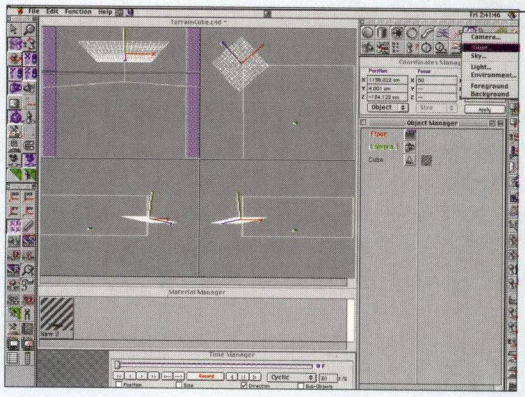
The upshot of all this is that screen redraw and rendering will be much quicker enabling you to work more productively.

Some of the effects in XL are very impressive, but can cost you plenty when it comes to test and final renders. Although volumetric lighting could have created the underwater beams a simple procedural texture was used instead which significantly reduced the render time and looks almost as good.

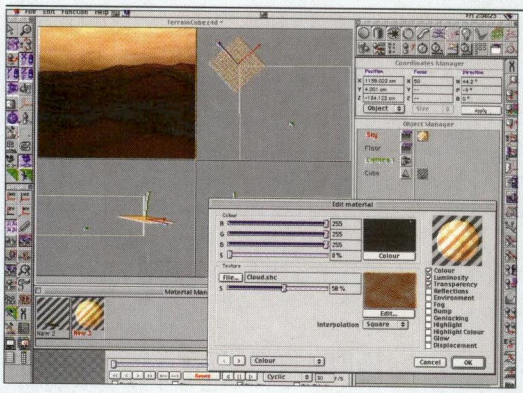
It just goes to show, a little bit of deception goes a long way...

→

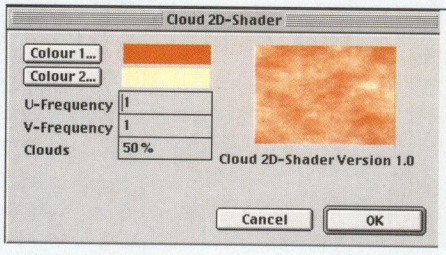
STAGE 1: Above water (continued)

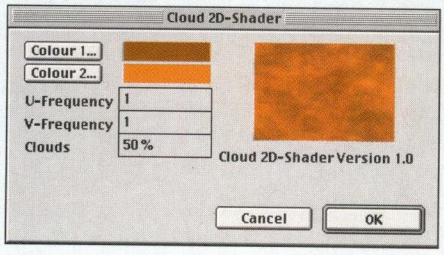


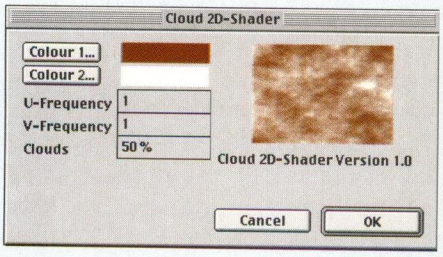
2 Next a Floor object was created to be used, believe it or not, for the overcast sky. Floors in XL are just infinite planes that can be positioned like any other object. They display as finite objects in the editor, which makes them a little easier to manage. Position the centre of the Floor above the distant edge of the cube and tilt it so that when rendered the plane's horizon appears hidden by the terrain.



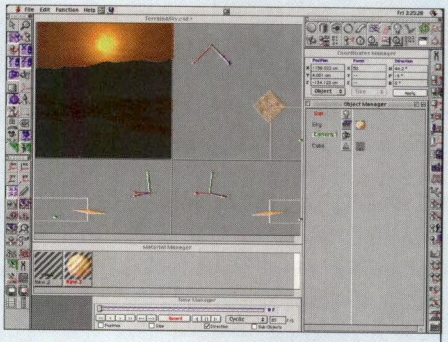
3 (a) The cloud material was another procedural texture supplied with XL, the 2D Clouds shader (found in the 2D Shaders folder). This shader was loaded into the Colour, Luminance and Transparency channels of a new material by clicking on the File button in each channel.



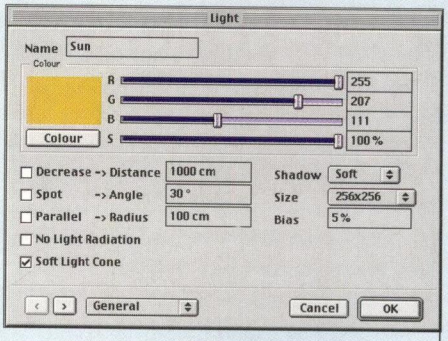




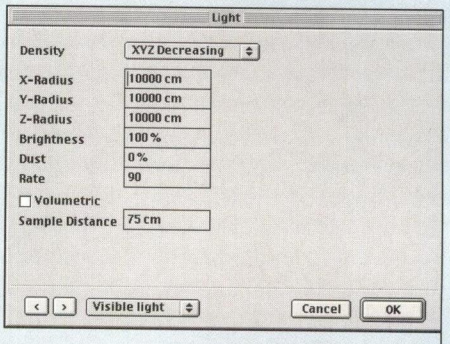
3 (a, b, c) These screens roughly show the colour settings for the clouds shader in the Colour, Luminance and Transparency channels. The strength sliders were set to 58%, 39% and 100% respectively.



4 (a) A radial light (the default) was added to the scene and placed at a distance behind and above the sky plane. The light colour was set to a deep yellow to simulate a sunset and the light itself was made to emit a glow using the visible light options in the Light's dialogue box (accessed by double clicking the icon on the Object Manager).

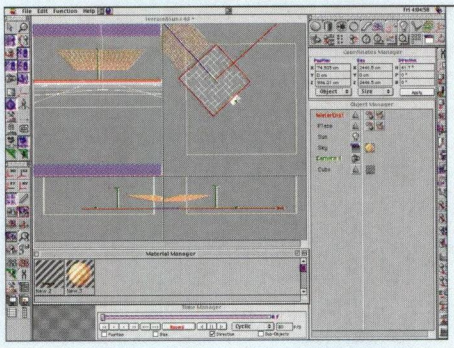


4 (b) Soft shadows were enabled and no decrease was set for the light's fall-off.

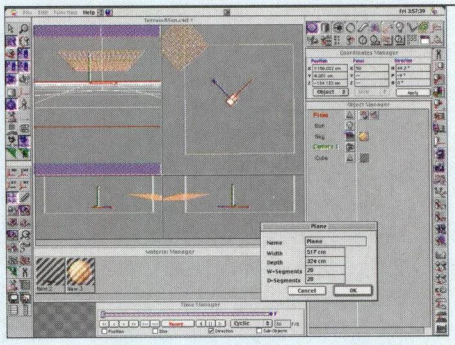


4 (c) The glow radius was set by performing test renders. Make sure that transparency is enabled in the render preferences or the sun will not be visible through the sky.

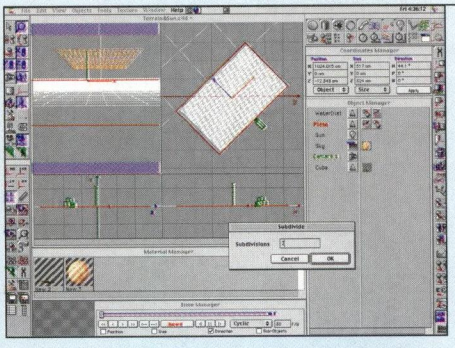
STAGE 2: sea surface



5 An ordinary plane is added (not an infinite Floor) and placed in front of the camera. It was scaled so that it looked like it stretched quite far in to the distance and the side edges were not visible to the camera.

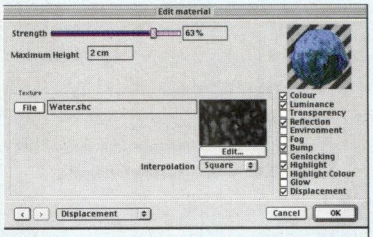


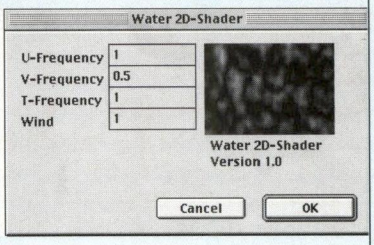
6 Another plane was added but scaled up until it filled the gap between the distant terrain and the initial plane. Why use two planes? Well since the camera would be very close to the front edge there needs to be a denser mesh there in order for the water material applied later not to appear faceted.
The more distant water needed much less detail so using two planes, one small and fine, the other large and coarse would save on memory, rendering time and file size.



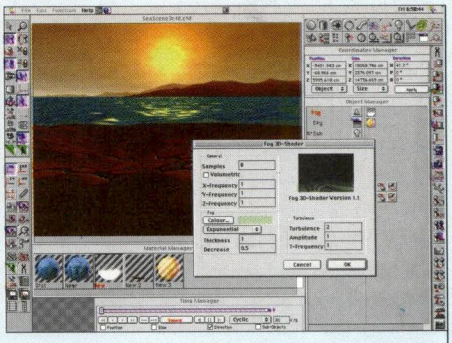
7 The density of the near plane was increased using the Subdivide tool with a value of 3 (Tools>Subdivide). This makes a plane of roughly 26,000 quadrangles instead of one big plane consisting of over half a million quadrangles!

8 (a) A material was created to simulate the water surface for the near plane using XL's 2D Water shader. XL's materials support real surface displacements as well as bumps so the shader was applied to both these channels to get a really 'rich' water surface. Reflections were added, tinted blue/green and also a pin-point highlight set to 120% intensity (you can change the values to above 100% by typing directly in the field).





8 (b, c) The 2D water shader is loaded into the Displacement and Bump channels of the material. To see all the values for the material open the file 'Sea-Scape.c4d' from CDigit and double-click on the 'Near' material. The distant plane used the same water material but with the displacement turned off.

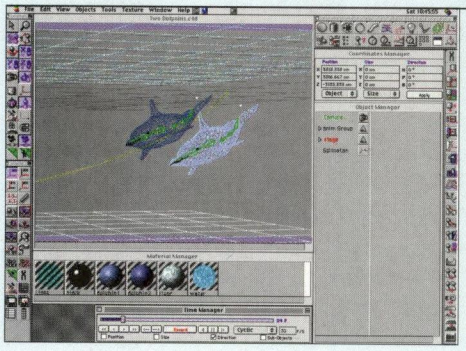


9 Finally, an Environment is used to add some ambient, evening light to the scene and also a radial light is used as a 'fill' to brighten the water. To add some further detail a large cube is positioned partially over the distant terrain and filled with a volumetric fog shader (from the 3D Shaders folder) to simulate a distant haze. You'll need to experiment with the size of the cube and the fog shader to get the best result.

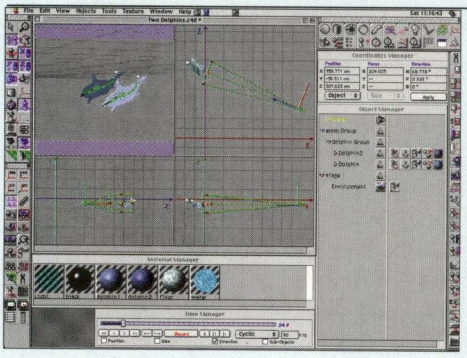
→

STAGE 3: under water – dolphins

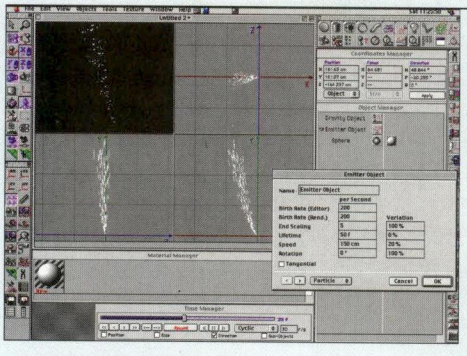
This part of the image uses the '2 Dolphins' file that ships with XL as an example of its Bones function. You can load it from the CD or, if you installed the XL Demo, your hard disk



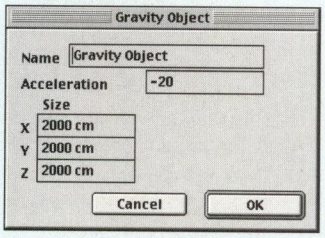
10 The 'Two Dolphin' file was opened and modified. Because this file is animated the Time Manager was moved to around frame 24 which set the dolphins in a nice position for the image. The rest of the scene was then deleted except for the animation path, environment and camera.

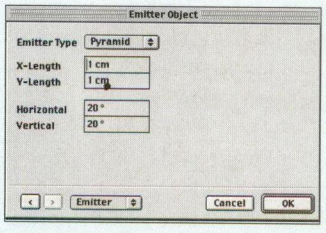


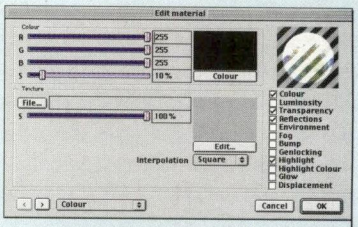
11 The camera was selected and making sure Attach Virtual Camera was on, the view was changed using the Camera and translation tools. Attach Virtual Camera changes the perspective window to the view from any object that is currently selected, so to see through the camera you must use this tool.

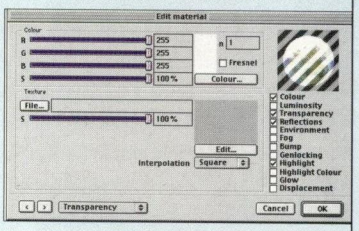


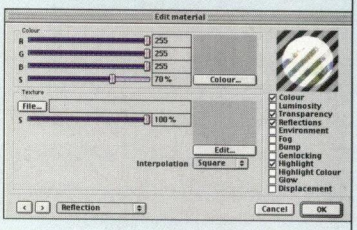
12 (a, b, c) Next, in a new document a particle Emitter was created with the settings shown that would be used to make the air bubbles.
A Gravity effecter was also placed in the scene with the power set to -20. This would cause the bubbles to accelerate upwards towards the surface.





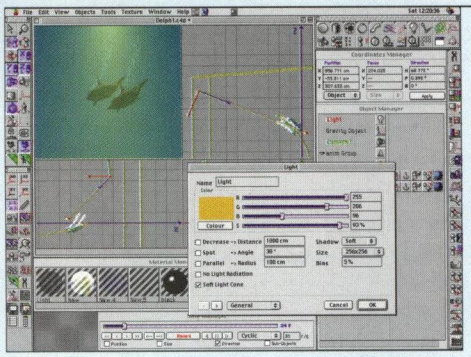




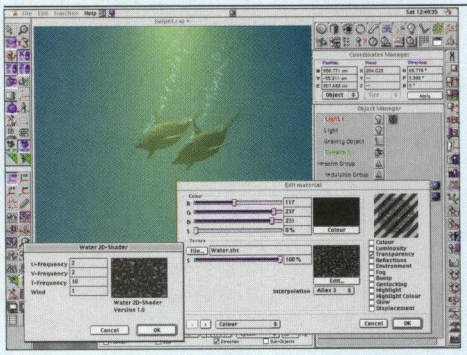


13 (a, b, c) Any object can be used as an emitter in XL so a single bubble was made from a Perfect Sphere and placed 'inside' the Emitter in the Object Manager. A reflective and transparent material was used for the bubble. It is important not to have too much surface (diffuse) colour in the material or the reflections and transparency will be swamped, a little colour helps make the bubbles more visible.

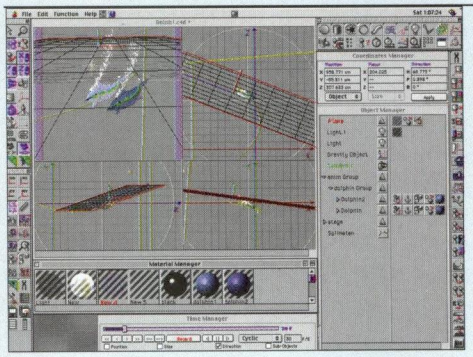
14 The particle system was copy/pasted back into the dolphin scene, positioned where the dolphin's air hole should be and grouped within the dolphin in the Object manager. The emitter was then duplicated and the sphere scaled down which would add some smaller bubbles. The two emitters were grouped together, copy/pasted and moved to the second dolphin. Note that the animation must be played for the particle systems to emit in the editor window.



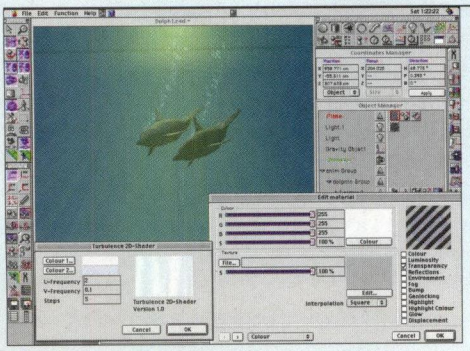
15 (a, b) Next the effect of the sun shining through the water was produced by placing a visible light behind the two dolphins roughly matching the angle of the sun in the 'above water' scene.

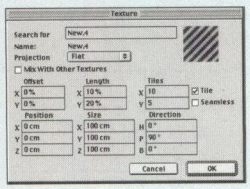


16 To add some detail in the lighting a 'gel' was used on a second fill light. This was simply a transparent texture from the original Two Dolphins scene slightly altered and dragged on to the light in the Object Manager. When the light was positioned above the dolphins a mottled underwater pattern would be cast on them.



17 To add extra realism to the underwater scene light rays needed to be created as the sun light filters through the water. This can be done with XL's volumetric lighting – but it would take a lot longer to render. The effect can be simulated by using a very long plane, tilted steeply away from the camera with a streaked, transparent texture applied to it.

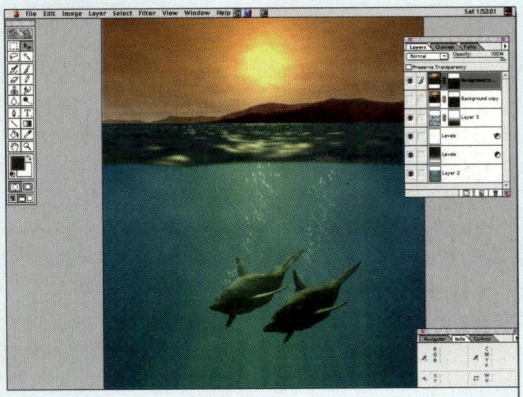




18 (a, b) The texture used was another 2D shader called Turbulence. Getting the right degree of transparency was achieved by using white and a very light blue as the colours in the shader.

The texture was applied to the plane in flat projection mode, the angle of the plane giving perspective to the rays.

19 The two images were rendered at full resolution (2550 pixels square) and brought into Photoshop to be composited. A slightly blurred mask removed the lower half of the above water scene letting the dolphins show through. Note that in the Demo of XL you can't render to disk, however you can complete the walkthrough by using low-res screen shots (Command+Shift+3,Mac) of your renders in XL.



20 The water's edge was too much in focus, so a gradient mask was made to protect the distant objects and the near edge of the water was blurred. This was much easier to do in Photoshop than using Cinema 4D's depth of field effect. Finally some Photoshop-rendered clouds were added to the underwater scene and the two images colour corrected so that they matched each other..

Stop being an ordinary creative, start having *visions.*

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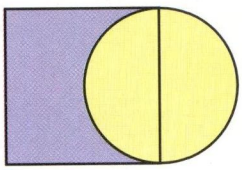
PAGE LAYOUT

By Diane Burns

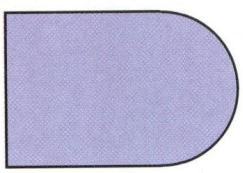
A 'Hole' new dimension to QuarkXPress 4.0



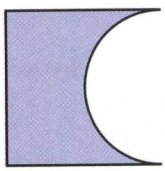
Example

Each figure left and below illustrates the effects of one of QuarkXPress's six new merge commands. In each example, the rearmost item is a blue square, which has been merged with a circle.

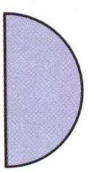
Intersection



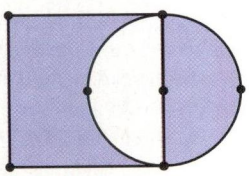
Union



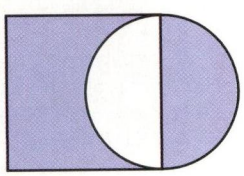
Difference



Reverse Difference



Exclusive Or



Combine

Drawing the line between page layout programs and vector graphics applications is getting harder and harder these days. Now that advanced type control, text in columns, and even footnoting are increasingly common features in vector graphics applications, you have to wonder what's coming next: a spell-checker for Adobe Photoshop 5.0?

Of course, this overlap and convergence is good news for layout artists. QuarkXPress has also jumped into the fray with version 4.0. This upgrade has added advanced graphics features that allow designers to flex more imaging muscle while working within the comfort of their favourite layout program.

In addition to Bézier tools and the ability to create text on a path and to convert type to picture boxes, XPress 4.0 adds yet another feature unique among the current crop of layout programs: merge commands. Basically, these commands will allow you to combine multiple, complex shapes into one Bézier item. In fact, XPress 4.0's merge commands are very similar to Adobe Illustrator's Pathfinder filters, Macromedia FreeHand's Path Operations, and CorelDraw's Weld, Intersection, and Trim commands.

There are six merge commands available in QuarkXPress 4.0: Intersection, Union, Difference, Reverse Difference, Exclusive Or, and Combine. The basic steps for each of these commands are fairly straightforward: Select two or more items, using either the item tool or the content tool. You can choose any type of item – a text or picture box, a line, a text path – or grouped items.

Choose one of the commands from the Merge sub-menu on the Item menu.

The resulting shape, regardless of how many items are selected, will be a single item, taking on the attributes – colour and shade, for example, depending on the action – of the rearmost item. The resulting merged item will contain the content of the rearmost item, deleting any other text or pictures within the final merged shape.

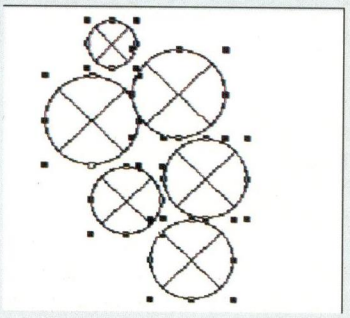
Naturally, depending on the effect you're trying to produce, it becomes important to notice which is the rearmost item. If you're not

→

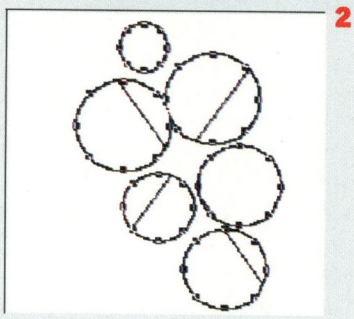
Union

The Union command can be used in a variety of ways. When applied to non-overlapping picture boxes, it causes the boxes to remain separate even though they will behave as one box. In this example, create and select two or more picture boxes of any shape (1). Choose the Union command from the Merge submenu; the result is one picture box (2). Import a picture (3); it will display inside the merged picture box shape. Finally, send it behind the merged picture box (4).

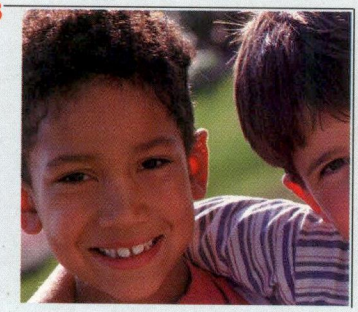
1



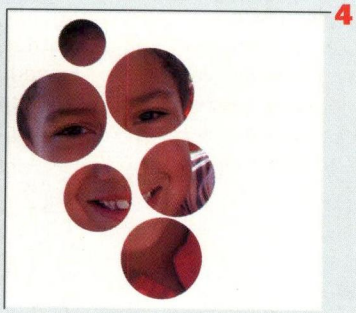
2



3



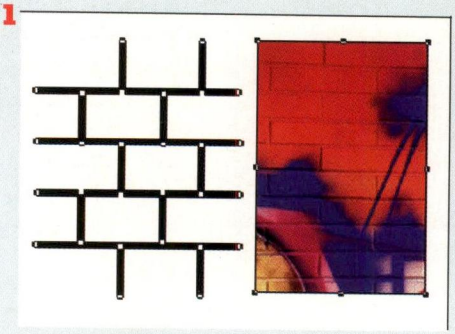
4



Simple difference

In this example, draw a series of lines in a brick pattern (1). Position the lines over a picture box; the picture can be imported or not (2). Choose the Difference command from the Merge submenu; the lines will be cut out of the picture box, leaving a series of separate boxes that behave as one picture box (3).

1



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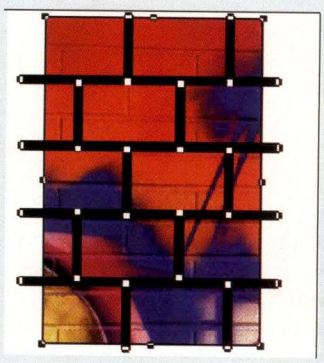

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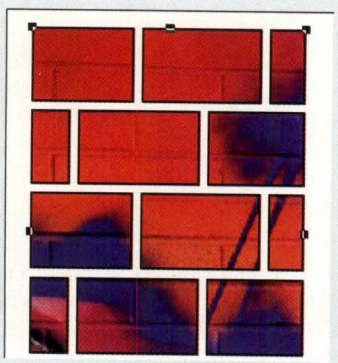


sure, you can always select the item that has the attributes you desire for the final merged shape and then use the Send to Back command from the Item menu before you select other items to merge.

The six commands

The name of each command implies its effect. For example, the Intersection command keeps the parts of items that overlap or intersect the rearmost item. It removes all the other parts, including the rearmost item, except where the items intersect. Union combines all the items into one, including both overlapping and non-overlapping parts. The Difference command subtracts the front items from the rearmost item, leaving only the parts of the rearmost item that are not overlapped, and Reverse Difference subtracts the rearmost item from the front items and leaves only the parts of the front most items that do not overlap the rearmost item.

Exclusive Or cuts out the parts of items where they overlap, but it leaves the rest of the items intact, adding two points at every point of intersection. Combine produces an effect that looks identical to Exclusive Or, but it does not result in points being added at each intersection. And if your head is spinning at this point, don't worry – the same effect can often be achieved using different merge commands. Ultimately, you will find that experimentation is the key.

The merge commands become most compelling, of course, when combined with QuarkXPress's traditional capabilities for importing pictures and applying colour, blends, and frames to items. Add that to XPress's typographic capabilities, and the design possibilities that can be achieved are greatly expanded from those that were possible in version 3.32.

Different strokes

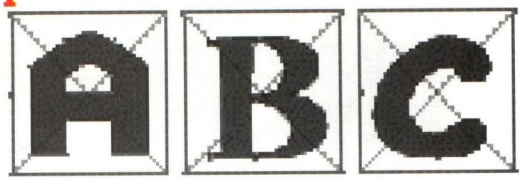
Sometimes a single command can be used to achieve very different-looking effects. For example, if you apply the Union command to overlapping items, you'll end up with one shape that is essentially the outline of all the shapes, with a solid centre. If you use the command on non-overlapping picture boxes, however, it causes the boxes to remain separate even though they will behave as one box. (See the sidebar "Union," above.)

Also useful is the Difference command, which can be used essentially to "cut out" one shape, or several shapes, from another. This means you can easily "punch" or cookie-cut letterform holes into the middle of picture or text boxes. Remember that you can use the Text to Box command not only on traditional typographic fonts but also on any picture font, further expanding the possibilities.

Lines can also be used to achieve interesting effects with the Difference command, such as creating geometric shapes that might otherwise be tricky to produce. Draw two lines in an X shape over a square box to produce four

Multiple difference

1



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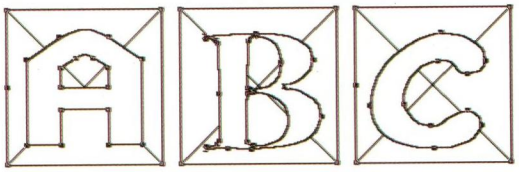


3

These four illustrations demonstrate the Multiple Difference function in QuarkXPress 4.0. Here, three separate text characters are converted to picture boxes (using the Text to Box command) and positioned over three separate square picture boxes (1). Select a letter and the box behind it, and choose Difference from the Merge submenu; repeat for the remaining two letters. Each box now has a letter "cut out" of the centre (2). Add a frame and fill each of the three boxes with a colour or an imported picture (3). Position another picture box over each letter box. Combine all six boxes using the Union command from the Merge submenu, and import a picture. The picture displays through the letterforms (4).

4

The merge commands open a hole ... er, whole new dimension in page layout

triangles, for example. Draw lines over the picture box to create jigsaw-puzzle shapes; when the Difference command is used, you end up with one picture, but it's in separate pieces, like a puzzle. The width of the lines drawn determines the space between each box. (See the sidebars "Simple difference," and "Multiple difference," below.)

The Exclusive Or command can be a little difficult to understand at first, but a bit of experimentation will reveal its interesting possibilities. With this command, all parts of the item shapes remain intact except where they overlap the rearmost item, giving you the ability to create an extremely complex picture box with ease.

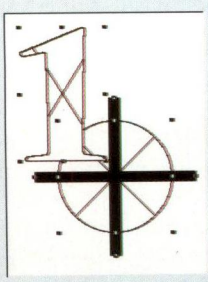
By adding a frame and importing a picture, you can create some of the most complex images possible with the merge commands. (See the sidebar "Exclusive Or".)

The key to working successfully with QuarkXPress's merge commands is to be aware of the layering order, since the rearmost item determines the attributes of the resulting merged item. You also need to be careful which items you select before using the command. Finally, it's important to experiment with the commands to become familiar with what can be done. The merge commands open a hole ... er, whole new dimension in page layout. ■

Diane Burns is co-author of *The QuarkXPress 4.0 Handbook* (MIS:Press, 1997).

Exclusive Or

1



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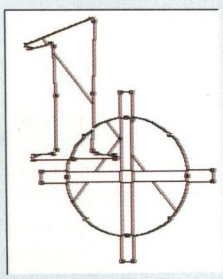

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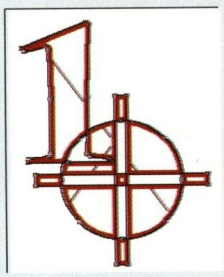
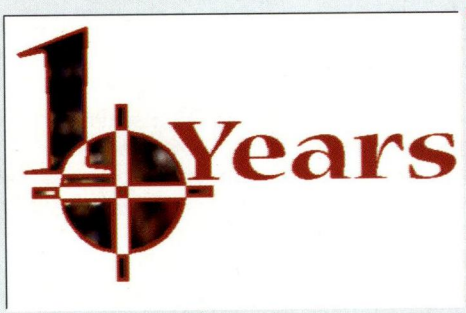


4



Here, three separate text characters are converted to picture boxes (using the Text to Box command) and positioned over three separate square picture boxes (1). Select a letter and the box behind it, and choose Difference from the Merge submenu; repeat for the remaining two letters. Each box now has a letter "cut out" of the centre (2). Add a frame and fill each of the three boxes with a colour or an imported picture (3). Position another picture box over each letter box. Combine all six boxes using the Union command from the Merge submenu, and import a picture. The picture displays through the letterforms (4).

IMAGE EDITING

By Deke McClelland

Fast-loading Web graphics in a snap

Delays are a fact of life on the World Wide Web. But just because you sometimes have to keep your visitors waiting doesn't mean you can't keep them entertained. As a conscientious host, you should give your guests something to look at while the images and other large files are loading.

Interlaced GIF and progressive JPEG files permit the browser to display graphics in incremental passes so that your visitor can at least get a sense of what an image looks like – even while it's still loading. But for those with slower Internet connections, the gradual pace of the update may prove more irksome than helpful, and the downloading image does not always look very appealing until all of the pixels come into complete focus.

A better option is one that offers more control and less automation. By inserting a LOWSRC (low source) tag into your HTML file, you can instruct the browser to load a snappy proxy of your image while the real graphic, in its own sweet time, loads into place fully polished. For example, the code tells the browser to first display the two-colour GIF file and then to replace it with the final JPEG image after the full-colour file has been completely downloaded to your page.

As usual, more control and less automation means more work. You have to be willing to expend the effort to create a separate low-source image, all the while ensuring that it is both small and presentable. The perfect solution is a black-&-white or two-colour GIF image that combines large areas of flat colour to facilitate Internet compression schemes, with a fringe of dithering to soften edge transitions. Although no image editor is capable of generating low-source images automatically, it's not hard to make your own custom proxy once you understand the basic steps.

The following method works well in retaining the detail that would otherwise be lost if you simply posterized or converted the image to a 50 per cent greyscale bitmap.

Two-colour proxies (right) allow you to shrink the file size to a mere 5 to 10 per cent of the full-colour version (left), providing your visitors with an idea of the final image

Adobe Photoshop 4.0

You're best off approaching your low-source proxy image as if it were a black-&-white graphic. You can substitute colours later on, with one colour replacing the black and another the white. The first step in Adobe Photoshop is to convert your image to greyscale, which you do by selecting Image, Mode, Greyscale. Click OK when you're asked to discard colour information.

Next, select the High Pass filter (from Filter, Other) and set the Radius to somewhere in the neighbourhood of 10 to 20 pixels. Although High Pass appears to make the image a muddy grey, this paradoxical and highly useful filter actually emphasizes the edges in the image, with lower Radius values producing more pronounced effects. (Thus, if you want more pronounced edges, go with a Radius value of 10; for less pronounced edges, go with 20.) The High Pass filter is instrumental in turning your image into a crisp line tracing, which is just what you want in a black-&-white proxy.

Now select the entire image by pressing Command-A (Control-A in Windows) and copy it to the Clipboard (Command-C or Control-C). You'll need this version of the image when it comes time to add the flat areas of black-&-white. Go ahead and leave the image selected.

The only way to get dithered edges is to have Photoshop make them for you. Select Image, Mode, Bitmap, and then click on the Diffusion Dither radio button in the Bitmap dialogue box. Make the resolution 72dpi for on-screen viewing. After you click OK, Photoshop converts

the image into a zillion black-&-white specks hardly a pleasing result. Fortunately, you'll be covering up most of the specks with flat areas of colour.

The next step is to add the flat areas of black. Convert the image back to greyscale (Image, Mode, Greyscale). Click OK in the ensuing dialogue box. Then, with the usual Command (Control)-V, paste the High Pass image you copied a moment ago. Photoshop will automatically place it on a new layer. Go to the Layers palette and select the Multiply option from the blending modes pop-up menu to keep just the darkest colours in the pasted layer.

Next, select Image, Adjust, Threshold, and enter a value between 110 and 120. Click OK. This changes a little less than half the pixels to black while leaving the other pixels white. Thanks to the Multiply blend mode, the white pixels drop away to reveal the dithered pixels below.

Now it's time to make the flat areas of white. Again paste the High Pass image (Command-V or Control-V), but this time select Screen from the Layer palette's blending-modes pop-up menu. Screen is the opposite of Multiply and retains only the lightest colours in the new layer. Now revisit the Threshold command and change the value to between 130 and 140.

Click OK. The result is large areas of white and large areas of black divided by a subtle band of dithering that remains visible from the bottom layer.

Next, select RGB Colour (Item, Mode, RGB Colour) and flatten the image when Photoshop asks you to do so. If you like, you can use the block eraser to touch up some of the wayward pixels in the image. The block eraser ensures that all the pixels remain either black or white, and you can access it by selecting the block icon from the pop-up menu in the Eraser Options palette.

The easiest way to substitute colours for black-&-white is to use layers. Create a new layer and fill it entirely with the desired colour. When substituting it for the black, select the Lighten blend mode in the Layers palette to colourize all the black pixels.

To colour the white pixels just repeat this step: make a new layer and fill it with colour; this time apply the Darken blend mode.

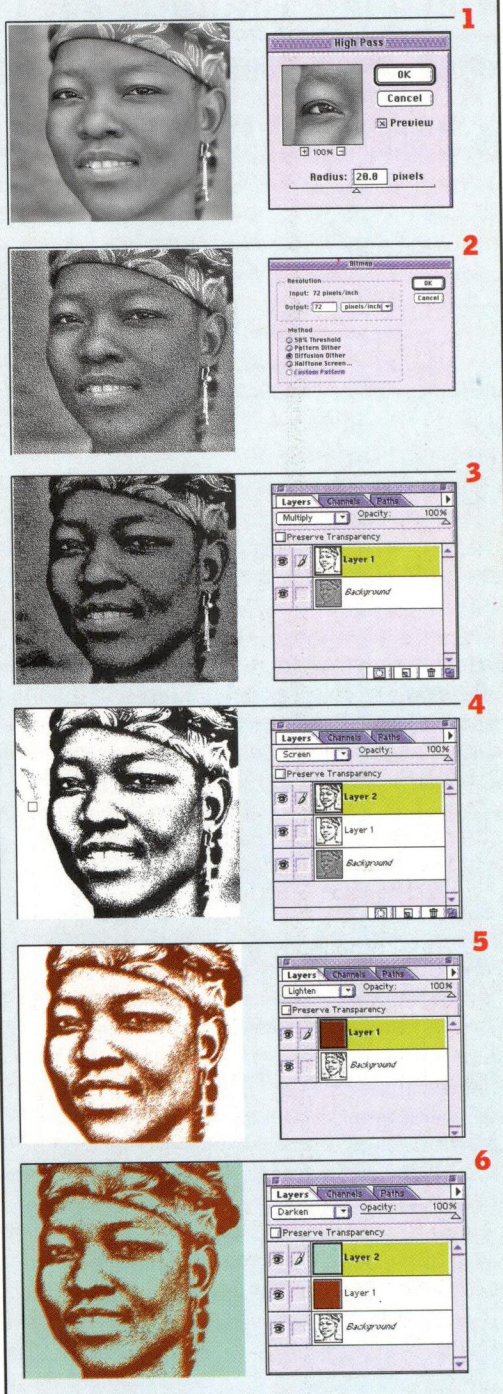
Flatten all the layers by selecting the Indexed Colour command (Item, Mode, Indexed Colour). This automatically reduces the image to the absolute minimum number of colours, which in this case is four: your two custom colours plus black-&-white. After you click OK, save the image as a GIF file.

Do not save your image as a JPEG file: you can't save indexed images (that is, images with fewer than 256 colours) to JPEG.

Not only would the compression make the image look rubbish, it would most likely take up more room on the disk. Also, low-source images load very quickly, so interlacing is unnecessary.

→

Adobe photoshop 4.0



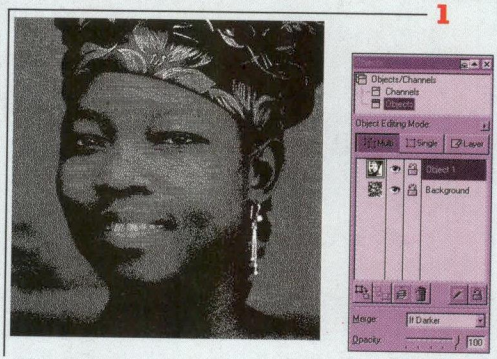
Convert the image to greyscale and apply the High Pass filter with a Radius of 10 to 20 (1). Select the image and copy it. Convert it to black-&-white using the Bitmap command; select the Diffusion Dither method (2). Convert back to greyscale and paste the copied High Pass image. Apply the Multiply blend mode and use the Threshold command to adjust the amount of black (3). Paste again, apply the Screen mode, and use Threshold to adjust the amount of white. Touch up with block eraser (4). Convert image to RGB. Create a new layer, fill it with the colour that replaces the black pixels, and select the Lighten mode (5). Repeat step 5, but this time select the Darken mode (6).

The World Wide Wait may never be over, but you can take comfort in the knowledge that your use of low-source images is doing its share to keep things up to speed

Adobe Photoshop 4.0

The basic steps work as easily in Corel Photo-Paint 7 as they do in Photoshop, with the usual low-level differences. Convert the image to greyscale, then apply the High Pass and Auto Equalize commands. After selecting the entire image and copying it, choose the Black and White command and select the Error Diffusion option. Convert the image back to greyscale and paste it as a new object. Choose the Threshold command with the Bi-level option selected, then select the If Darker option in the Objects palette (1). Paste another object, apply Threshold to create the white areas, and select If Lighter. After converting the image to RGB and flattening it, use the Replace Colours command to change black-&-white to the colours you prefer (2).

1



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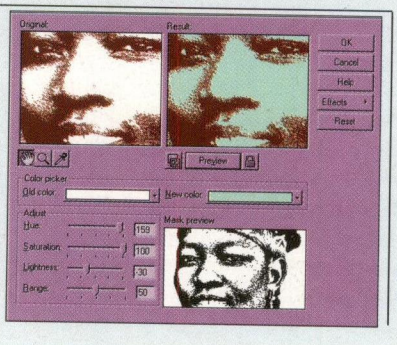

Corel Photo-Paint 7

The basic steps to create a proxy image convert easily from Photoshop 4.0 to Corel Photo-Paint 7 with the usual low-level differences.

First, convert the image to greyscale by selecting Image, Convert To, Greyscale. Apply the High Pass filter, which appears in Effects, Sharpen. For best results, set Percentage to around 70 and Radius to 10. It's also a good idea to go back to the High Pass dialogue box once more and reinstate the darks and lights by applying the Auto Equalize command (in the Effects pop-up menu, select Adjust, Auto Equalize). After selecting the entire image (Control-A) and copying it (Control-C), you can create the underlying dither pattern by selecting Image, Convert To, Black-&-White and then selecting the Error Diffusion option.

Next, convert the image back to greyscale and paste the High Pass image as a new object (Control-V). Select Image, Transform, Threshold and then click on the Bi-level radio button to send the colours to either black or white. You'll probably want to set the Threshold value to somewhere between 100 and 110. After you apply the Threshold command, select Merge, If Darker from pop-up menu in the Objects palette.

To create the white areas, paste the image, choose the Threshold command again, and set the value anywhere between 115 to 125. This time, select Merge, If Lighter from the Object palette's pop-up menu. Then convert the image to RGB colours (from Image, Convert To) and combine all the objects with the background (Objects, Combine, All Objects with Background).

Colourizing the black-&-white pixels takes less effort in Photo-Paint than in Photoshop. First use the Replace Colours command (Image, Adjust, Replace Colours) to swap the black for another colour. Then choose the command again and replace the white. Finally, select Image, Convert To, Paletted; then click on the Optimized radio button and reduce the number of colours to two. You may encounter some colour shift. Finally, save the image as a GIF file.

Less is more

With the techniques we have just described, both Photoshop 4.0 and Photo-Paint 7 let you reduce an image to its most essential outlines. In doing so, you can shrink the file size to a mere 5 to 10 per cent of the full-colour version. The result is a low-source file that loads in the blink of an eye without detracting from the fundamental beauty of the image.

With enough practice, you may even find yourself using two-colour bitmaps not as low-source proxies but as final images.

The World Wide Wait may never be over, but you can take quiet comfort in the knowledge that your helpful use of low-source images is doing its share to keep things up to speed. ■

Deke McClelland wrote *Photoshop 4 Studio Secrets*, *Photoshop 4 for Windows 95 Bible*, and *CorelDraw 8 for Dummies* (all IDG Books).

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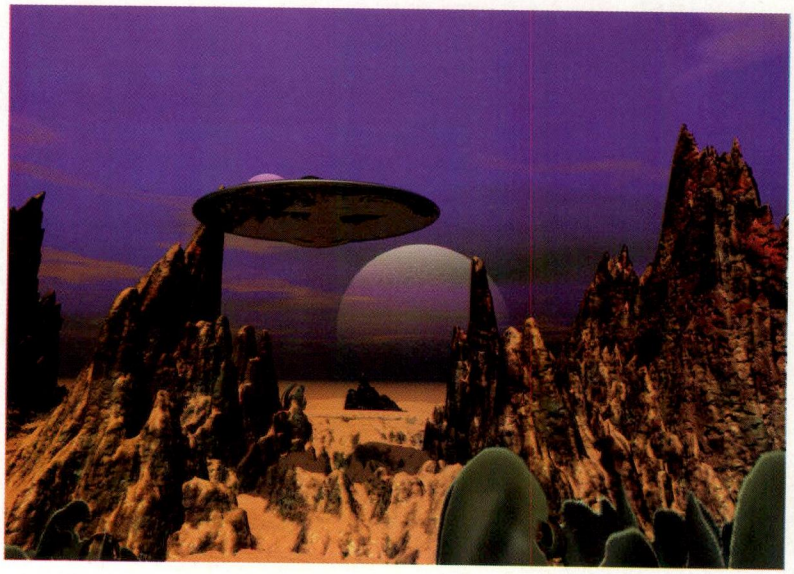
Brave new

By Eric Taub

Planetary Traveler is an animated movie designed, scored and rendered entirely on desktop computers

Check out the demo of *Planetary Traveler* and MetaCreations Bryce 3D on CDigit #1.

Below: Bryce allows the mothership in *Planetary Traveler* to hover over alien lands.



Like climbers taking on the challenge of Mount Everest, digital adventurers in the entertainment industry have long wanted to prove that a desktop computer is capable of climbing the graphic heights once thought to be the domain of Silicon Graphics workstations.

With *Planetary Traveler*, Jan Nickman, president of Third Planet Entertainment, has done just that. The 40-minute animated exploration of alien worlds, as seen from space probes travelling across eight planets, is the first animated movie to be designed, scored and rendered entirely on a Mac.

Planetary Traveler got its first exposure in the UK when MetaCreations' Kai Krause previewed the innovative movie at a *Macworld* keynote presentation at Apple Expo in London last November.

Nickman wanted to create a show exploring fantasy worlds, but he wondered if desktop computers were capable of producing the images he needed. Since the budget for this film was coming out of his pocket, money was also a consideration. When Nickman saw an advertisement for MetaCreations's Bryce software that showed an ice-covered alien landscape, he realized the concept was viable.

"It was stunning," he said. "Bryce creates an extremely unique look to terrain – a subjective, hypnotic and organic look that other terrain builders just don't have."

The Mac was the only platform that Nickman considered, even though Bryce is also available for Windows.

"There was never any question of using a Wintel machine," he said. "The Mac is the standard in the video and graphics community, and I wanted to draw from the largest pool of talent possible. For these people, the less time they spend screwing around with the workings of the machine, the better."

Because Bryce 2.0 created only still-frame 3D terrains, it could not be used to animate frames. MetaCreations let Nickman use an early animated version of Bryce 3D – available as a demo on this month's CDigit.

worlds

"It was buggy alpha software, actually just Bryce 2 with some animation patches on it," he said.

The project team grew to include Rodney L'Ongnion, a highly skilled Bryce user and owner of 4U2C, a Hollywood-based video production company. L'Ongnion said he knew that Bryce users regularly convene at MetaCreations' discussion site on America Online (AOL) – a logical place to find talent.

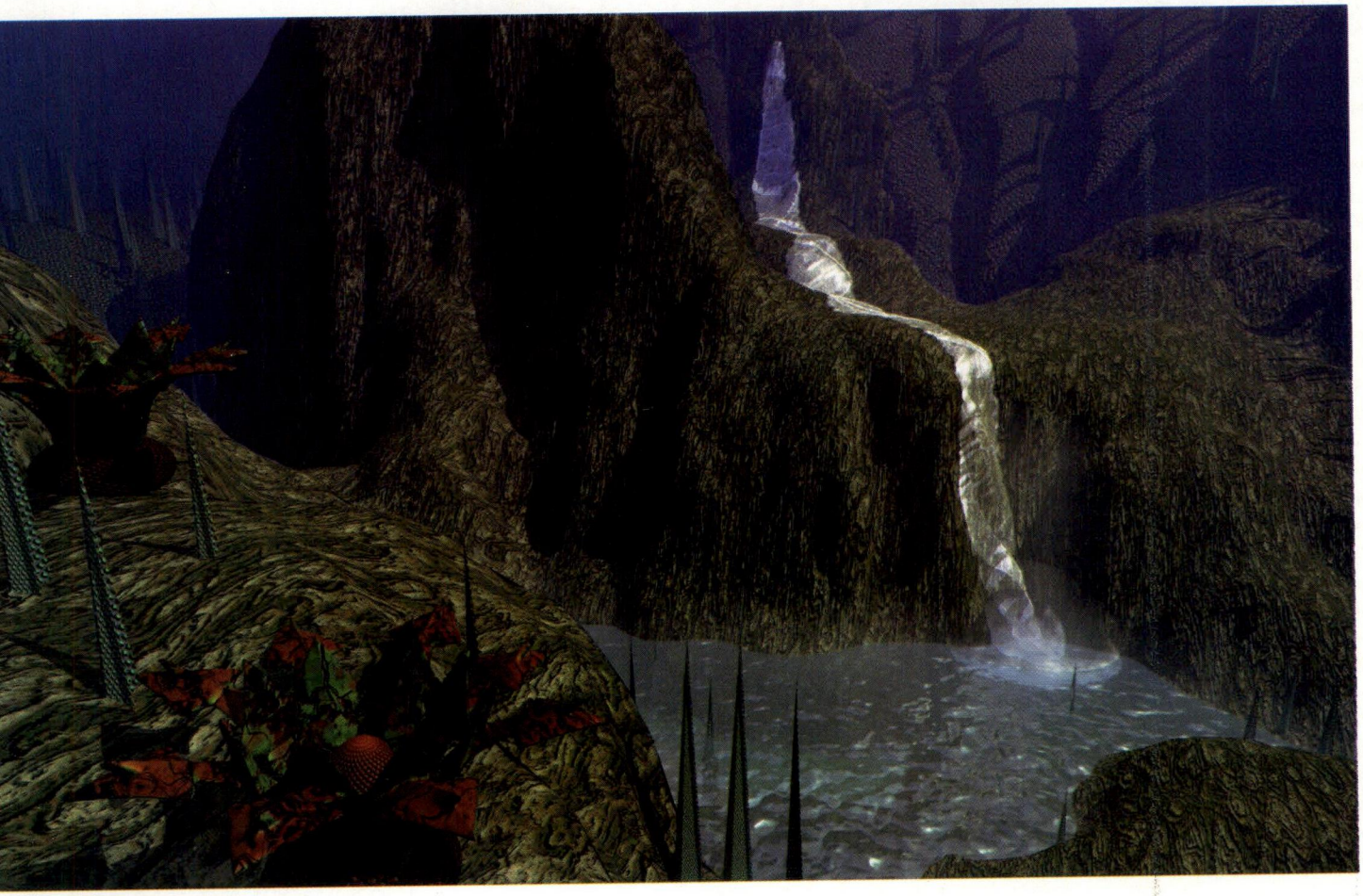
"With AOL, we had an opportunity to recruit artists from a broad spectrum," Nickman said. The geographically dispersed animation team included a full-time geneticist, the owner of a security company and a calligrapher.

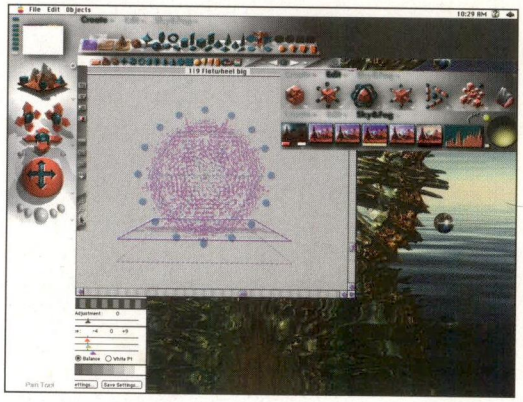
"We promised them $500, a free Iomega Zip drive, one hell of a résumé and whatever royalties might accrue," L'Ongnion said.

Working out of their homes, the animators gathered daily in private chat rooms on AOL and couriered Zip disks of their work to Nickman.

"Even today, I still haven't met every member of the team," L'Ongnion said.

Nickman said he was concerned about his →





Alien worlds in *Planetary Traveler* are depicted through a series of intricate animations and rendered in Bryce.

ability to communicate with the staff, a fear that turned out to be unfounded.

Forced to "chat" only with a keyboard, the team found that their messages were more concise and clearer than if everyone had been on the phone or together in a room. And when one team member needed to speak privately to another during a meeting, he or she would use AOL's instant message feature.

"These meetings turned out to be more efficient than anything I do in person," Nickman said.

Creating alien sound

WHILE JAN NICKMAN AND RODNEY L'Ongnion were creating the visuals, composer Paul Haslinger was using Macs to design a musical score.

"Nickman was trying to create worlds that sometimes could pass for real-world imagery while at other times would look surreal," Haslinger said.

"I had to find a musical way of expressing that mix of the familiar and the unknown. My solution was to juxtapose a traditional symphonic style with electronic, more artificial sounding music.

"Using Cubase from Steinberg, plus a Quadra 800 for sequencing and a Power Macintosh 7600 for digital audio processing and recording, Haslinger created up to 150 different tracks in certain sections of the project.

"I did not want traditional short songs in this show," he said.

"I wanted to create a symphonic piece with elements that connected to the whole.

"This was a very complex work to create, but I hope the listener hears only my attempt to enhance the imagery through the musical message."

Alien invasion

Originally, Nickman wanted to depict alien worlds as seen from an Earth spaceship. The ships would be created using a suite of animation products from Alias Wavefront, a subsidiary of Silicon Graphics, and then imported into the Bryce backgrounds. But after six months, that idea was dropped.

"Our Earth-based craft were given a space-age look," Nickman said, "but it was too jolting to drop these craft into alien worlds, so we changed the concept to alien craft visiting alien worlds."

The group decided to design everything in Bryce, including the alien craft, after tests showed that the Wavefront-created objects did not integrate well. "Once we brought the ships into Bryce, they didn't interact well with the light sources," Nickman said.

Nickman and L'Ongnion decided that the most efficient way to render the images would be by creating a network of ten Mac OS machines. The network mixed Power Mac 7500s and 8500s and Power Computing clones, all running the PowerPC 604 chip at speeds between 120 and 180MHz.

Depending on the complexity of the image, each frame took 20 to 40 minutes to render, with frames from the "Plasma Storm" sequence taking a whopping nine hours each because of the vapour-like effects of the graphics.

"We ran our Apple Power Macs 24 hours per day for over one year, and not one machine ever failed," Nickman said.

Using the pre-release Bryce package caused problems as well. For example, because the colours didn't match, scenes designed in the shipping version of Bryce had to be separated from those made in the pre-release version.

"A sequence might have looked fine when running a QuickTime test, but then, after we viewed it full screen, we realized it was unusable," L'Ongnion said.

Adobe After Effects was used to compile frames into a 3:2 pull-down. That way the scenes could be rendered at the film speed of 24 frames per second (fps) to avoid the robotic video look of scenes rendered at the TV standard of 30fps.

Because the team used alpha versions of Bryce, the animators had to reject 75 per cent of the frames that were rendered.

Eight hours of footage were eventually created, of which 40 minutes were finally used. Total rendering time: 50,000 hours.

"Would I do this kind of show again? Absolutely," said Nickman, who noted that one of his new proposals is a Mac-based computer-graphics project.

And the latest Macs would cut processing time. "With the new G3 machines and MetaCreations' Bryce 3D (check it out on CDigit #1), we'd be able to create a completely different show," L'Ongnion said.

"Rendering could be done in half the time, and we wouldn't have to use After Effects and Photoshop to clean up our problems. ■

World Cup '98

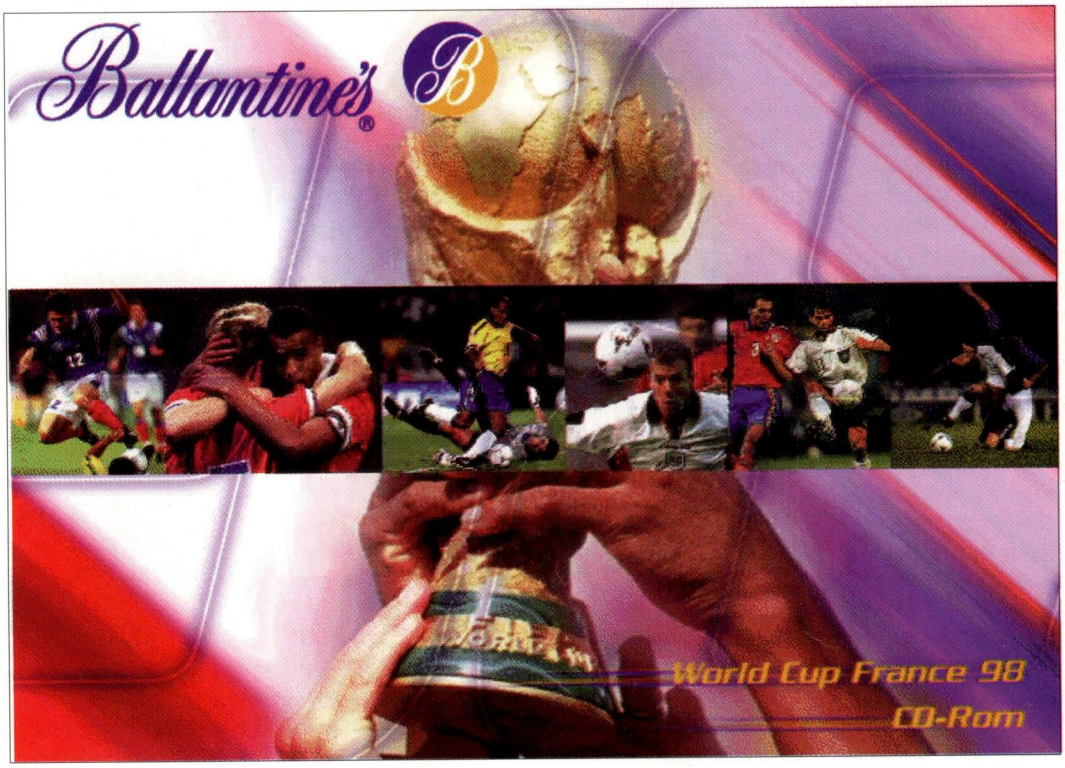
An "interactive wallchart" on CD-ROM

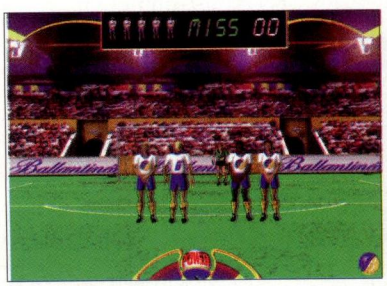
You won't be able to miss it this summer... From June 10 till July 12, football's World Cup Finals are going to be on your TV, all across your newspapers, in your face – and on your PC.

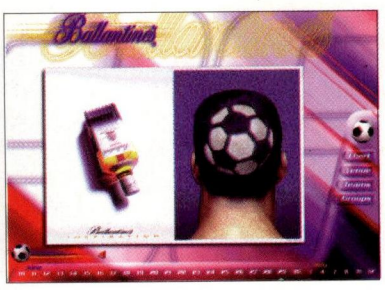
London-based Cimex Media, in association with client Allied-Domecq, has created what it describes as an "interactive wallchart" for PC-based football fans everywhere.

Here we look at the brief and Cimex's solutions, including Internet interactivity for match reports and statistics, a screensaver and a game.

There is a demo of World Cup '98 on this month's CDigit.







The Free Kick game
The object of the game is to score as many goals as possible by bending the ball past the wall Roberto Carlos-style. You have five lives, and you lose a life everytime you miss.

You can control aim, curl, and strength of shot. Programmed in Director 6 using lingo, the challenge was to programme the 3D ball dynamics so the ball would bounce and curl realistically.

The stadium and players were all rendered in 3D Studio Max, then optimized to a 256-colour palette ready to be imported into Director.

Cimex's brief was to produce a novel and exciting CD-ROM based around this summer's World Cup Finals in France with the aim of promoting a branded whisky for Allied Domecq. Cimex was put totally in control of design, functionality and sourcing of content.

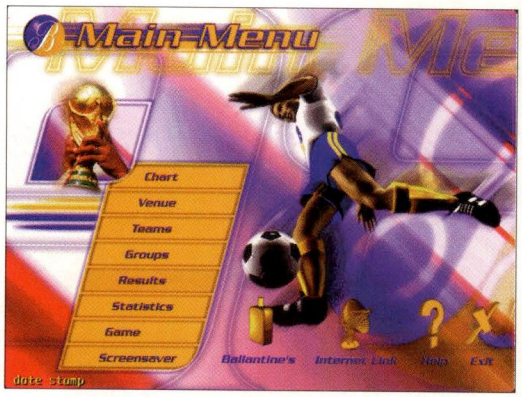
Solution

Before production, design and functionality was documented using flowcharts, storyboards, and accurate descriptions of content. The aim was to present the client with a picture of the end product, to be signed off before production commenced.

The CD was designed as an "interactive wall chart", hyperlinked to information on teams, video clips, venue information, match reports and statistics.

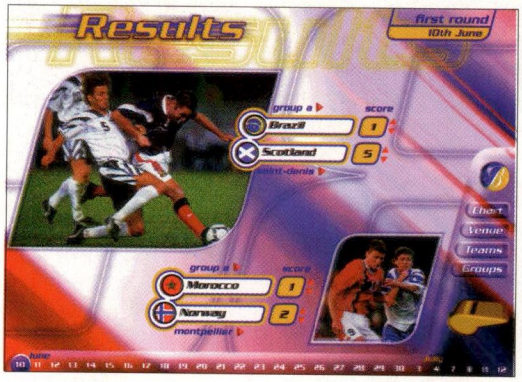
"Testing should never be underestimated," reckons Cimex's technical director Ian Haynes, "and it's a two-stage process". First, Cimex

→



Users are led through the CD by means of simple buttons, using as little text as possible to enable easy translation to other languages.

Much fun can be had before the first whistle is blown. Users can enter results and engineer a variety of fantasy football scenarios. Below: gritty Scotland put five past the skilful Cup holders, Brazil, on the opening day...



The CD processes the data to calculate fixtures and points. Once the games commence, users can download real news, results and squad changes from the Internet.

Those without Internet access, enter results manually.

tested functionalty – making sure everything does what it should. Then the designers ran the product on a variety of delivery platforms (under Windows 3.1, 95 and NT) with different hardware configurations.

Hybrid CDs are an excellent way of combining rich multimedia content with the immediacy offered by the Web. The number of downloads will be logged including notes of repeat visits. At the time of writing 160,000 discs have been pressed with another 50,000 in the pipeline.

Defining a minimum specification As this was going to be widely distributed the product had to run on a 486 DX2 66MHz PC with 8MB RAM,Windows 3.1, and a dual-speed CD-ROM player. (The Macintosh demo on this month's CDigit was ported specially and exclusively for *Digit*.)

As the CD project is global, part of the client's specification was to keep on-screen text to a minimum to cope with different languages.

Content

Not all content was produced in-house, so stock photography and video was bought in. This can be an expensive part of such a project. Media libraries are beginning to appreciate the value of the World Cup, so some negotiation by Cimex was required to get the best deal. Usage rights can be complex so it is important to decide on buying for the production run or negotiate a set one-off price.

Internet linking

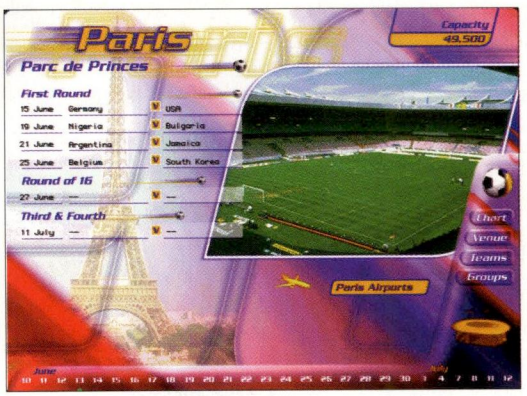
Results will be stored on several Pentium Pro servers each with >10-Mbit connections to the outside world. Linux OS running Appache server software was chosen over Windows NT because of its reliability. 160,000 downloads of a single file the morning after a match is a webmaster's nightmare, but Cimex believes it has enough computing power and bandwidth to cope. ■

Cimex Media

New Media production company Cimex was founded in 1994. The company, based in London, offers a variety of multimedia services to a range of businesses, and specializes in CD-ROM authoring and Web-site design/programming. Previous clients include Marks & Spencer, Virgin, Granada TV, Price Waterhouse and Warner Brothers.

Project Manager: Karen Sainsbury
Technical Director: Ian Haynes
Design Director: Afzal Mohammad
Senior Graphic Designer: Brie Wohler
Senior Programmer: Ben Davies
Internet development: Andrew Whitaker
3D Designer: Marek Las
0171 359 4664
www.cimexmedia.co.uk

They didn't have technology like this in 1966. Will Gazza still be out of the picture in June?



England fans might find it hard to get tickets for the World Cup in France, but Cimex's CD-ROM gives you the chance to take a virtual peek inside the stadia.

DIGITAL TOOLBOX

HARDWARE

Graphics, video and authoring was carried out on a suite of networked Apple Power Macs (9500s, 8600s). Cimex explained its choice by stating that Macs can run multiple monitors by adding additional graphics cards, making windows-hungry applications such as Macromedia Director work more efficiently.

Some of the 3D graphics were produced using 3D Studio Max on a Gateway 2000 PC running a 266MHz Pentium II with 128MB of RAM. "Windows PCs are catching up slowy with classic applications such as Adobe After Effects becoming available on Windows," said Haynes, "but cost-effective multiple monitors will become a reality only with Windows 98."

SOFTWARE

Macromedia Director 6.0 Despite several challenges from the likes of MTropolis, Director has managed to keep ahead with its ability to cope with simple and complex work. A recent additon is its Internet-integration features: data from the Web can be streamed down and treated like any normal media resource. During initial stages lingo work was carried out using dummy graphics with elements added as they were produced. The backbone of the CD was a series of outines dealing with storage and display of results. The application runs like a spreadsheet – as the user enters a result, changes to group tables and qualifications are calculated.

Adobe Photoshop 4.0 / Illustrator 7.0 The interface was designed using Adobe Illustrator and Photoshop. Cimex uses the two programs together, combining techniques and flicking between the two.

Illustrator is used to further concepts from paper to computer and to create templates. Due to its vector format, it is useful for laying out type and icon development. Photoshop was used to further Illustrator templates and progress the "look and feel" of the interface.

Multiple layers ensure flexibility and the Copy Merge function is an ideal way of transferring elements straight into Director casts.

DeBabelizer 1.6.5 The "ultimate image automator" according the Cimex designers, DeBabelizer's mission was to find the best 8-bit palette from a weighted selection of image files.

All graphics were re-mapped and dithered to this palette. "Re-mapping can work well or make things look terrible," noted Cimex's Ian Haynes. "As we chose a similar colour range for the interface the conversion worked well, and the final images looked close to the originals."

Media 100 QXc Getting the best video requires the best source, and minimum compression. Video was digitized at on a Media 100 QXc linked via Fast SCSI to an 8GB disk array, capable of storing 15 minutes of broadcast-quality video.

Adobe After Effects 3.0 After Effects was used to create animations from 3D renders, and to combine video clips with 3D and custom windows, using alpha channels. These were saved out as animation compressed files.

Media Cleaner Pro 2.0 Many CDs have poor quality video and the main causes are poor source, over-compression, and incorrect or spikey data rates causing jerky play-back and dropped frames. Media Cleaner ensures minimum compression while keeping data rate rock solid.

Macromedia SoundEdit Full-length sound tracks were chopped into loops and down-sampled from CD quality to 22KHz, 16-bit ready for the CD.

Kinetix 3D Studio Max Cimex describes Windows-only 3D Studio Max (see Reviews) as a "world beater".

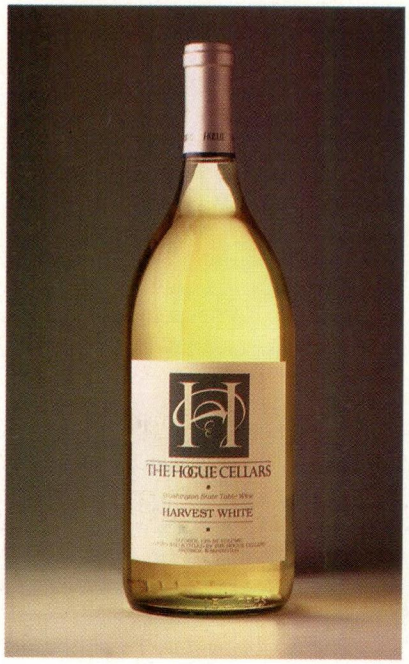
Studio Max came into its own here with its character-animation capabilities. All animations were output with Alpha channels to allow seamless integration with other elements.

Cops Talk 2.1 As Macs outnumber Windows machines in our studio we chose Cops Talk which allows PCs to communicate with Macs using AppleTalk conventions.

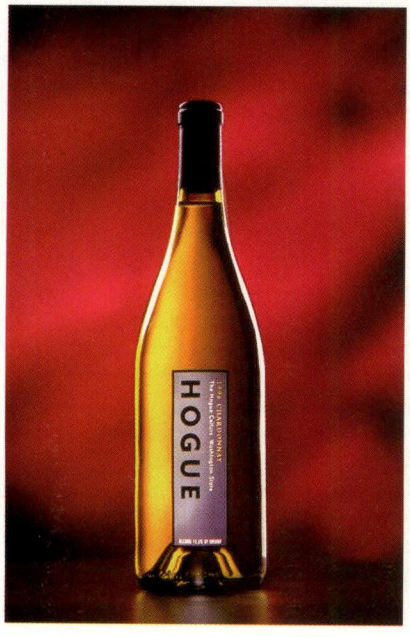
Makeover

WINE LABEL

By Poppy Evans



Created in the early 1980s, the crestlike H of Hogue's label lent respectability to the fledgling winery. But, being similar to many others, the label didn't stand out on the shelf.



The label's new vertical orientation and Geometric Black typeface give Hogue a distinctive look. Considerably smaller than the old version, the label also allows more of the wine to show through.

REVAMPING AN EXISTING PACKAGE can present a dilemma to designer and client alike: should a company capitalize on consumer recognition by building on its current packaging concept, or should it try a bolder, entirely different statement?

Such a decision faced the Leonhardt Group design firm when the Hogue Cellars winery asked for a more modern version of its label, then dominated by an ornate H.

Having worked with Hogue for more than ten years, Ted Leonhardt understood his client's position in the marketplace and the strategy behind the label's design. Hogue, a mid-size winery in Washington state, had modelled its original label on those of popular California wines.

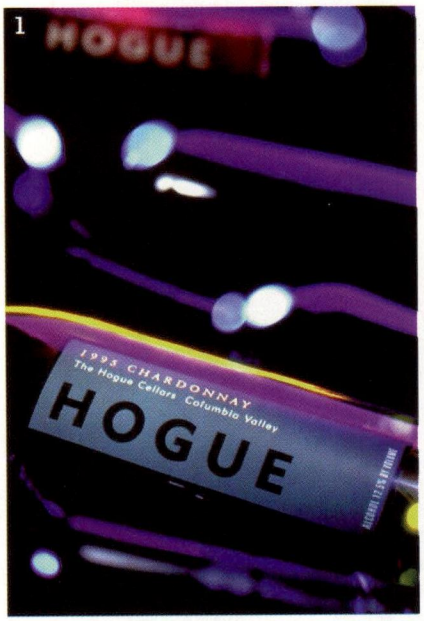
"When Hogue started in the early '80s, nobody had heard of it," Leonhardt explains. "The design was created to give the company credibility."

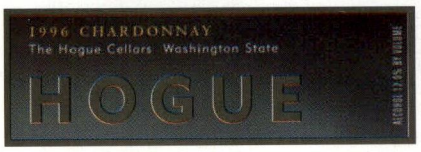
Hogue has done well since then, winning awards and selling more than 300,000 cases annually. For the new design, "we wanted to build the Hogue name and reflect the wine's high quality," says Leonhardt, who felt a clean, strong look would set Hogue apart from its competitors and better reflect the personalities of the winery's founders. And, he explains, "Hogue had no problem selling wine, so there really wasn't much risk in a radical change."

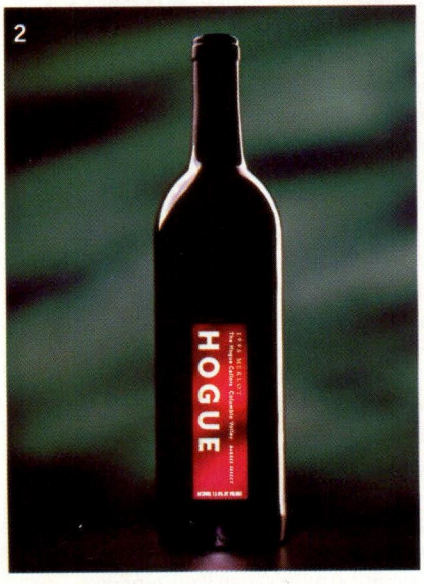
Ray Ueno, who headed the design team, at first followed the client's directive to simply update the label. But after the designers presented their concepts, the winery reconsidered. "Hogue said, 'Why don't you take off the handcuffs and blow us away?'" Ueno relates. "From there, we came up with some amazing designs." The team's fresh, unorthodox approaches vastly expanded the winery's awareness of design possibilities.

Hogue eventually chose a typographical treatment that read vertically. The unconventional look has generated much favourable publicity, including an article in US *Brandweek* magazine. But the new label might not have come about had the Leonhardt Group not stimulated the winery's receptiveness to less traditional designs.

"If we had shown this idea to the people at Hogue initially, it would have died," Ueno says. "They would have thought it too risky." ■





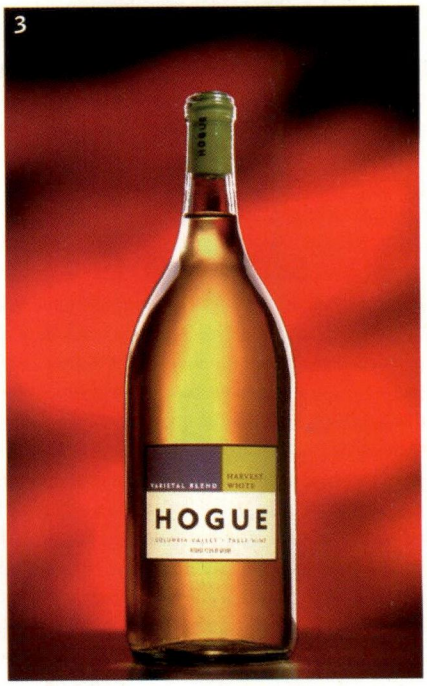


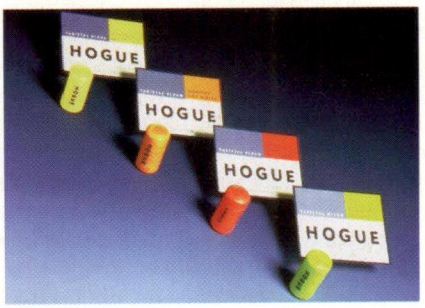
1. The Leonhardt Group designers used a variation of "Hogue blue", a colour from the previous label, for Hogue's premium wine. This category makes up the largest volume of Hogue's sales. The label background has a shadowed effect created in Adobe Photoshop – the designers' response to Hogue's request to soften the hard-edged look of the typography.

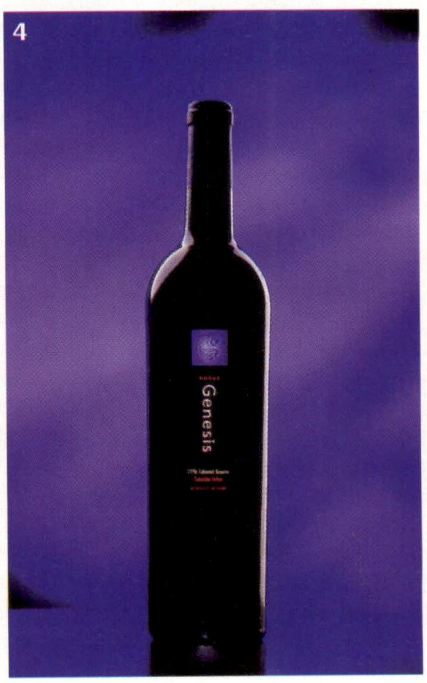
2. The designers wanted the label for Hogue's super-premium wine to signal a higher-quality product. They created a dark crimson for the background and, for greater richness, printed the labels with two impressions of foil.

3. The four wines in Hogue's least-expensive line required an adaptation: slim labels wouldn't have worked on the magnum-size bottles. Plastic corks are colour-co-ordinated with the labels' light-hearted colours.

4. Hogue's limited-production wines are sold under the Genesis label, which uses a light version of the Geometric typeface. Leonhardt Group designers created the whimsical G from rolled cardboard.







DIGITAL TOOLBOX

HARDWARE

Apple **Power Macintosh 7100/80** with 72MB of RAM and a 2GB hard disk, and an Apple Multiple Scan 17-inch monitor.
Agfa **Arcus II** flatbed scanner.
Hewlett-Packard **LaserJet 4MV** printer.

SOFTWARE

Adobe Photoshop 3.0
QuarkXPress 3.32

TYPEFACES

Centaur: Adobe Systems
Geometric; **Zuric**: Bitstream

Digit solutions

Q&A plus top tips

By Mark Nichoson

SEEING SPOTS

I'm creating a flier using Adobe Photoshop 4.0.1. After scanning a black-&-white photo, I opened the file in Photoshop. I then created a document the size of my flier. Here comes the problem: I copied the image and then pasted it into a new document. The resulting image is filled with little dots in a grid pattern, although the other parts of the document are unaffected.

I also notice that when I turn off any two of the RGB colours in the Channels window, the dots disappear. That is, if only the red, green, or blue is selected, the dots go away. But if more than a single channel is selected, the dots appear again. Can you tell me what's happening and if this will be a problem at the printer's?

Keith Sumrall

Looks like you're pasting a greyscale (black and white) image into an RGB document. You've got Photoshop working overtime, trying to make blacks and greys by mixing red, green, and blue. What you're seeing is the pattern of RGB dots that results. The dots don't appear in a single channel (when you turn off two colours) because single channels are displayed as greyscale images anyway. It's only when the program is trying to display the whole RGB enchilada that the pattern appears. Your best bet, of course, is to export your image for use in a page layout application such as QuarkXPress or Adobe PageMaker, which is better suited to the task than Photoshop.

If you are determined to continue working in Photoshop, you can do one of two things: either specify a greyscale rather than an RGB file when creating the new flier-size document, or just change the Canvas Size on your photo to the size of the flier – and then select and move the photo into position. In either case, you'll end up with a greyscale photo in a larger greyscale document, and everything should look and print just fine.

SMOOTH OPERATOR

I am thinking of buying a flatbed scanner so I can catalogue several hundred oil paintings. I am hoping to scan the paintings directly and thereby save the considerable expense of photographing them all in the traditional manner. After a brief experiment using a friend's scanner (with Adobe Photoshop), I was generally very pleased with the clarity and detail. However, the downside is that the texture of the painting itself is also visible. The images are painted in a manner so as to avoid too much buildup of texture, but this unwanted effect still seems unavoidable. Do you know of a scanner routine or filter that will flatten this texture or decrease it in some way?

Theo Govan

Any decent image-editing program has a number of filters you could use. In Adobe Photoshop 4.0, you should experiment with Despeckle (Filter, Noise) and Smart Blur (Filter, Blur). The Despeckle filter detects image edges (the areas where significant colour changes occur) and blurs all of the current selection except those edges. Smart Blur essentially does the same thing with more control over the amount of the effect. Select your problem areas, and apply.

One difficulty you'll face is that for each unique image, you're going to have to go in and apply the filter where it's most needed – probably in entirely different areas from image to image. You will also have to be very careful as you go – even pixel by pixel in some cases – so as not to degrade the overall image. The problem isn't flattening out an image; it's flattening out several hundred images.

Short of hiring an intern, you're probably better off photographing your catalogue because you're looking at a very labour-intensive task.

SCANNING TIP

Most flatbed scanners have a "sweet spot," a limited area of the bed in which the information measured by the CCD array is the most accurate. In order to find this magic area on your flatbed, scan a piece of grey paper in Adobe Photoshop 4.0 using the RGB mode.

From the Window menu, select Show Info to display the Info palette. Under palette options, select RGB colour from the Second Color Readout pop-up menu. Choose the Eyedropper from the tool bar and run it over the image while keeping an eye on the RGB values indicated on the palette. The areas where the values are the closest are the most accurate areas of your scanner.

Pete Hixson

COMPACT DIZZINESS: CD-DRIVE COMPATIBILITY

questions

Q I'm confused about CD-RW. A vendor told me that a CD-R (recordable) disc can be read by any CD-ROM drive. A CD-RW (rewritable) disc can be read only by a CD-RW drive. But another vendor told me that CD-RWs can be read by some CD-ROM drives (other than their machine).

I was hoping to purchase a CD-RW to back up my system files and to serve as an archival library.

However, I wouldn't purchase anything that is incompatible with other systems, especially those of my clients.

Dori Nanry

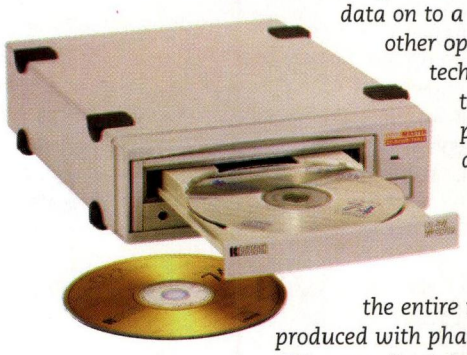
A *CD-RW uses a phase-change recording technique (instead of the small pits used by CD-R) to overwrite recorded discs with new data. Recorded CD-RW discs have a different reflectivity value and a different directory structure from those of other CDs, so they are invisible to most existing CD-ROM drives. So yes, if your client has a standard CD-ROM drive, a CD-RW disc probably won't show up on it.*

The good news is that you aren't limited to CD-RW discs in a CD-RW drive. The same drive can also write to a CD-R disc, which your client's CD-ROM drive should be able to read without any problem. So you could burn CD-RW discs for your own archival use, and burn CD-R discs for back-and-forth with clients.

More good news: the tower of Babel that is the recordable-CD market may have found a universal translator. The Optical Storage Technology Association (OSTA) has persuaded about 80 per cent of all optical-storage vendors to support its MultiRead specification.

In essence, participating manufacturers agree to produce optical devices capable of reading all four primary CD formats: audio CD, read-only CD-ROM, recordable CD-R, and rewritable CD-RW. OSTA expects future read-only DVD-ROM and recordable DVD devices to also comply. The first MultiRead-compliant drives went on the market last autumn.

For graphics professionals lured by the promise of 18GB of storage (for a double-sided DVD) or by the ease of rewritable CDs, the ugliest aspect of this bewildering array of acronyms has been the issue of compatibility. Like a family reunion from hell, no one's talking to anyone else: that shiny CD-RW disc you just burned won't even show up in your client's old CD-ROM drive, and most DVD drives can't read a CD-R disc. As manufacturers eagerly rush to market with proprietary formats and competing technologies, what publishers need more than anything else is consensus. The MultiRead specification may be the first small step in ensuring that what you burn today, you can read tomorrow.



MultiRead

Ricoh's MediaMaster drive, which supports the new MultiRead specification, uses either CD-RW or CD-R media.

Finalized this past summer, MultiRead was painstakingly negotiated by OSTA, a consortium of 65 drive manufacturers. Some of its members include Hewlett-Packard, Kodak, Philips, Ricoh, and Sony.

Getting so many companies to agree was no easy matter. The incompatibility problems are twofold. First, DVD uses a smaller laser wavelength than a regular CD to squeeze more data on to a square inch. Second, unlike other optical-disc formats, CD-RW technology doesn't use small pits to encode information. It uses phase change: areas of the disc are changed into either a reflective crystalline state or a nonreflective state.

When erasing a CD-RW, a second powerful laser melts the entire recording layer clean. CDs produced with phase-change technology have a different reflectivity value than regular CDs and are therefore invisible to most existing CD-ROM and DVD-ROM drives.

To address these issues, MultiRead has three specifications: all drives must accommodate a range of laser wavelengths (from 635 nanometers for DVD to 780 nanometers for CD); they must automatically boost the lower reflectivity of rewritable media; and they must include support for both fixed and variable packet writing (that s, for data written in 64K chunks or in pieces of any size).

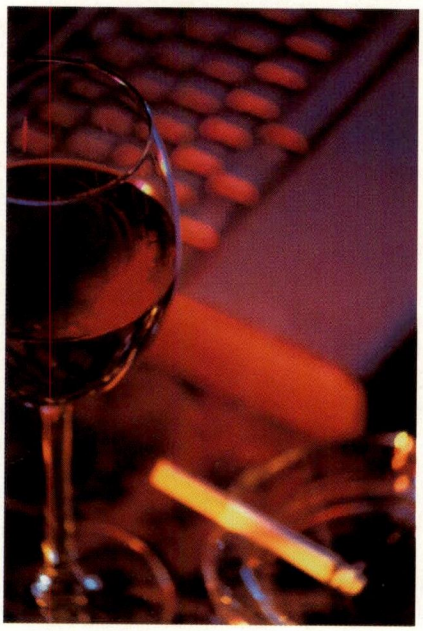
MultiRead devices already on the market include the Ricoh MP6201 CD-RW, Philip's CDD 3610 CD-RW drive, and MDI's CD Express CD-R tower system. The MultiRead logo-licensing program is being administered by Hewlett-Packard.

MultiRead, however, is only the first step. The latest wrench in the DVD works came when Sony, Philips, and Hewlett-Packard announced DVD+RW, a DVD rewritable specification completely different from the DVD-RAM standard these companies had agreed on a year earlier. NEC has also broken from the pack and is introducing its own variant, the MultiMedia Video File (MMVF) format. Publishers will have to wait for the smoke to clear to determine which of these formats emerges as the standard.

OSTA, www.osta.org.

Why I hate PDFs

Apple's Steve Jobs says he loves Adobe's Portable Digital Format. Mark Gibbs thinks different.



Photography courtesy of PhotoDisc

You see it used all over the Internet and in all sorts of products. I've had single-page product sheets and press releases sent to me in PDF format, as well as white papers and product documentation. The problem is, I just don't get it.

Why use PDF? The fact that an electronic document can "look" like a real document doesn't make it more valid. If it is electronic, it is electronic. In the case of vendors, I'm at a complete loss as to why they supply their manuals in PDF.

Is it laziness? Is it because they can print their documentation that is laid out for paper directly to the PDF driver rather than go to the trouble of creating a specifically electronic version? That doesn't make a lot of sense.

The vendors could just as easily export the document to HTML, which generally would be more useful. Just imagine if all of your vendors supplied their manuals in HTML. You could add their content to your intranet content and all of your users would have access to the manuals. You could even annotate and modify the documentation to suit your organization's needs. Nirvana!

Of course, it may be that vendors figure that their deathless prose has such great intrinsic value that the hoi polloi shouldn't be able to cut and paste it.

Unfortunately, most vendor manuals are dull, pedestrian tomes that fail utterly in providing insight and added value to their product. PDF files are a hangover, a retro technology that serves to keep us in the data age.

The data age? Yep, that's what we're struggling out of. The data age was an era when just to get access to any content was an incredible step forward. The data age view was, in its time, a reasonable and rational way of looking at the world. As the cost of computing fell to reasonable levels and software matured to the point at which it was possible to provide cost-effective business functionality, what mattered was data.

This was because the handling of data was a practical goal. We didn't have the luxury or the appreciation of information-handling tools. What we wound up with were databases and spreadsheets - tools that allowed us to manipulate the bulk of our interests rather than their essence.

People, we're supposed to be moving out of the data age. We're supposed to be in the information age. That's the age that recognizes meaning and purpose as a prerequisite of possessing knowledge, as fundamental attributes of that stuff we call information. Manipulate data and you can, for example, handle your inventory or your sales.

But handle information and you find that you can optimize inventory and determine which salespeople are the most effective and why. Without focusing on and acquiring information, the idea of electronic commerce is a mere streamlining of data processing.

It's rather like taking a Volkswagon Beetle, painting racing stripes on it, and trying to enter the Le Mans. Sure, you might get in, but you'll be running an underpowered, non-competitive machine.

So what to do about PDF? Well, if you are a vendor, think carefully before you use it. Do you have a real need for it? If you are an end user and you create PDF documents, ask yourself why. Is it simply because it is easy?

Or is it because document layout fidelity is a real concern? And if in either instance document fidelity really is a concern, is that concern based on content or layout?

I have yet to find a compelling need for document layout fidelity, but if you think you have one, please write and let me know and I'll be glad to admit I was wrong. Until then, my slogan will be "PDF. Just say no." ■

Please send in your opinions, replies, ideas and rants to Digit (contact details opposite). There's a prize every issue for the best letter!

Digit #2

On sale Thursday June 4th 1998!

Adobe Photoshop 5.0

First word out on the latest upgrade to the number one image editor is "Wow!". Details are hush-hush now, but *Digit* will be taking a feature-by-feature look at this must-have upgrade in Issue #2.

Creative licence

Should graphic designers be licensed? The question sparks furious debate. If there were such a credentialing test, here's what it might look like. Can you pass it?

RIP roarers

When you decide to bring printing capabilities in-house, you need to pick the right RIP – easy, if you know what to look for.

High-end scanners

Digit Labs asks whether you can truly give your repro house a wide berth with a report on the latest affordable high-end scanners.

ElectricImage Broadcast System

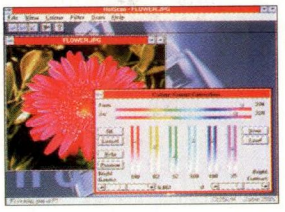
Visit some of the top production houses and you'll find state-of-the-art 3D systems costing upwards of £20,000. If you look more closely though, you'll also see lurking in the shadows, on a lowly Mac the ElectricImage Animation System churning out some of the best imagery in the business. We take a look at possibly computer graphics' best-kept secret and how it can produce film-quality effects for the price of a mid-range PC.

Workshop – Capital improvements made easy

As the monks who illuminated medieval manuscripts knew, initial capital can really create an impact. Digit takes a tutorial on drop caps.

Plus all the regulars: Makeover, Project, Case Study...

And, of course, the latest essential news for digital content creators. We go to all the shows around the world, and talk to industry gurus and a fair few techies at work on tomorrow's technologies. If you want to stay one step ahead of the world's fastest changing industry, all you need to read is *Digit*.



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By Tim Rich

Coming soon... your next career

Once upon a time people left school, trained for a job, then spent decades doing it. Those who switched careers were seen as brave dilettantes, failures or lunatics (unless they made loads of money, then they were visionaries). And, of course, there were the Reggie Perrins who, so depressed by the absurdity of their corporate life, simply walked into the sea. The question everyone asked of everyone else was 'what do you do?' – you were your job, your job was you.

Today, the challenge facing many people is not how to bear 49 years of developing 'a career' but how to adapt skills and knowledge to match the extraordinary rate of technological and commercial change. Jobs are hyper-evolving, particularly in the creative world. At an industry event ten years ago you might have clinked glasses with a hot-metal typesetter, an airbrush artist and a TV studio set builder. New technology has moved all three jobs onto the computer – graphic designers are typesetting on the Mac, any decent image software program offers an airbrush tool and most TV studios are glorified cupboards with walls, screens and objects created virtually.

'Jobs are hyper evolving, particularly in the creative world'

Tim Rich by David Jackson

Similarly, the working lives of many designers, image makers and publishers – the high profile beneficiaries of ubiquitous desktop technology – are now being transformed by a whole range of practical technology applications that would have been unthinkable ten years ago. In-house magazine designers become intranet directors; publishers immerse themselves in CD-ROMs; advertising art directors create Web sites; illustrators pick up video cameras; even photographers – those micro-focused, computer-cursing Luddites – are beginning to see life beyond transparency decoration.

In a document called *Skills for Graduates in the 21st century*, The Association of Graduate Recruiters summed it up like this: "Careers are no longer like a Chinese banquet: 15 courses brought to your table one after another. They're more like a progressive supper: bite-sized portions eaten in different places." Because some individuals are transforming what they do, it doesn't mean everyone should down MetaTools and reinvent themselves overnight, naturally, but ignoring the way technological and commercial developments are affecting you could prove career-fatal.

For example, I'm currently working as a consultant on three separate corporate-literature projects; in each case the printed material has to closely interact with a company Web site. The print designers and I have to consider the on-line angle at every juncture.

Just 18 months ago the Web wouldn't have come into many conversations about corporate literature; today, for a print designer to openly profess .www. ignorance is simply unacceptable.

Corporate identity manuals keep thousands of designers and printers employed, but many large and dispersed companies are shifting this information online. Audi is about to launch an intranet linking its 4,500 dealers and agencies worldwide. Called ERA, for Element Rule Application, it will contain corporate and brand identity manuals together with digital artwork, layout workshops and live design help desks. If I worked for a printer specializing in corporate manuals I'd be looking to move – fast.

The speed of change in the working environment can be daunting, but those who are thriving all achieve four fundamentals: first, they have a clear understanding of what they're already good at (their technical skills and expert knowledge); second, they have a clear understanding of their personal qualities (an ability to communicate effectively, for example); third, they watch how the business world and their particular sector is changing; fourth, they understand that they need to continually develop skills and knowledge to match (or, ideally, anticipate) changes, and are prepared to redefine what they do as a result.

It's not really that hard, is it? Employees in the creative industry must become more entrepreneurial if they are to survive, producing opportunities by adapting their strengths to new environments.

The change is registering in social situations. People are increasingly likely to follow the old 'what do you do?' with 'what are you planning to do next?'. Think carefully before you answer; assuming that you'll be doing the same job in five years – or even six months – means you might just become another digital dodo. ■

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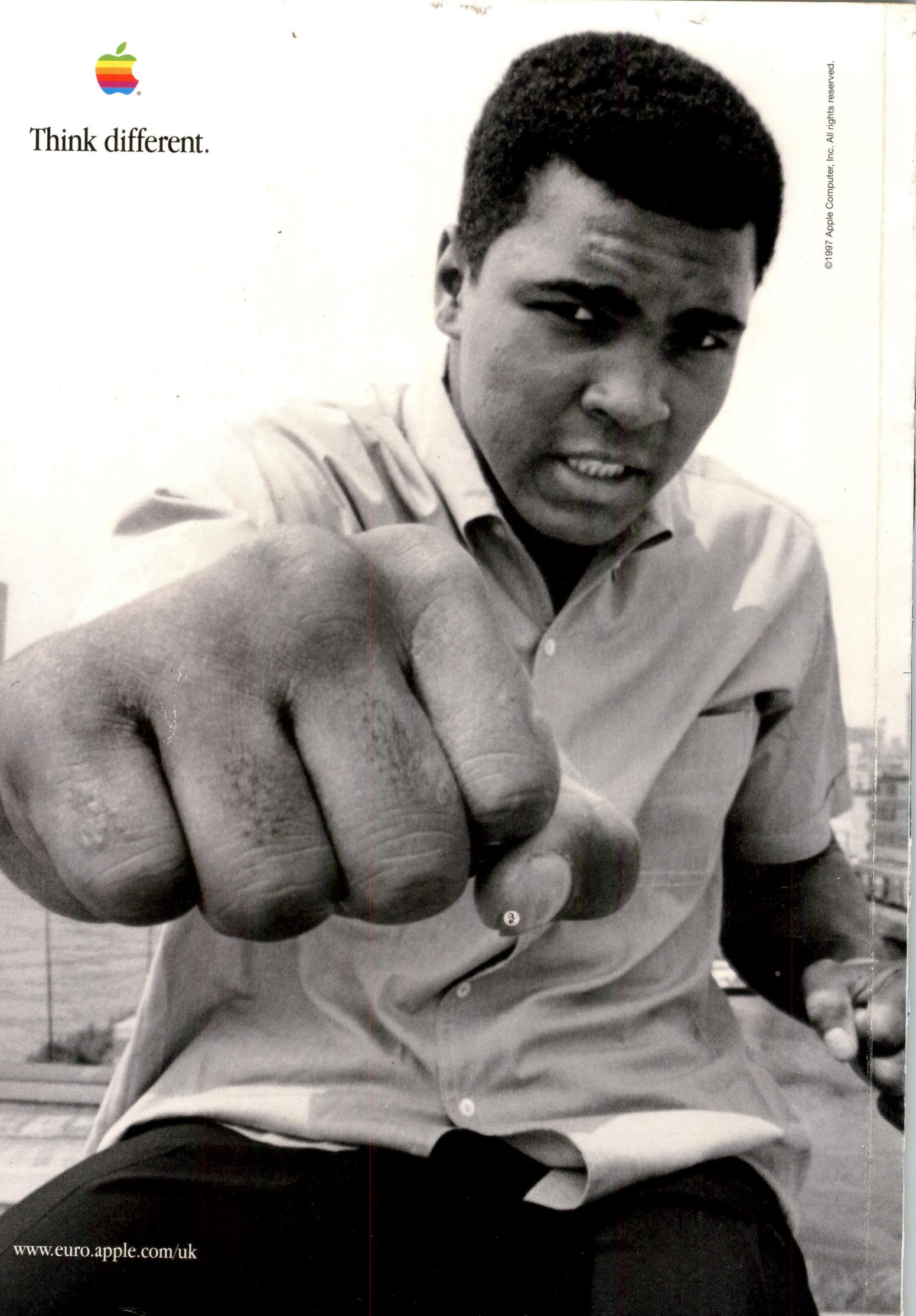
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